

# COOP'S TECHNOLOGY DIGEST

-A Timely Report On The World Of Communications-

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NOVEMBER 11, 1994 / VOLUME 94-11-12

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## COPYRIGHT TRIBUNAL DECISION - What It Means

On October 6th the three-person Copyright Tribunal (District Court Judge A.E. Gaskell, Professor D.C. Gunby and G.J. Billings, reportedly a farmer) released their decision.

*"Kiwi Cable's application is so clearly untenable that it could not possibly succeed ... (we must therefore rule that) the Tribunal has no jurisdiction" in this matter.*

The Copyright Tribunal has not met to consider a case for nearly one decade. The Tribunal Division is a small, often forgotten corner of the Department of Justice (New Zealand). For Kiwi Cable the decision was a significant blow to their hopes of being allowed to carry on cable the ESPN satellite feed now under exclusive contract to SKY Network.

Some background. In November 1988, the American total sports service network ESPN granted an exclusive right to New Zealand SKY Network for the distribution of ESPN service within New Zealand. This agreement, called a "licence" by the Tribunal, was not presented at the hearing although ESPN did offer it for study to the Tribunal *"if it thought appropriate."* The Tribunal chose not to inspect the licence.

SKY Network's actual use of ESPN's satellite delivered (Intelsat 508; 180 east) programming is a part of a world network. ESPN told the Tribunal that *"it has customers in more than 100 countries."* The satellite feed to SKY Network is received by SKY Network stock holder Television New Zealand at a dish in downtown Auckland and then sent via terrestrial microwave from TVNZ to the SKY studios at 10 Panorama Drive, Mt. Wellington. ESPN told the Tribunal:

*"ESPN transmits its programmes from the United States to New Zealand via satellite and in the form of an encrypted signal which has to be decoded before it can be rebroadcast. ESPN authorises its licensees world wide to use B Mac decoders which ESPN can unlock electronically thereby allowing the licensee to receive an unscrambled signal."*

The Tribunal's summation of this process made the additional notation:

*"The only party in New Zealand with an authorised B Mac decoder is SKY Network Television Limited ("Sky")."* This is a not quite true statement since there are privately owned B-Mac



decoders in use by individuals and commercial establishments. These locations have purchased their B Mac decoders through SKY or directly from the USA, and have gone to SKY for a subscription agreement. These locations pay SKY around NZ\$44 per month for their satellite delivered ESPN service. The Tribunal could have phrased this notation more accurately had they written:

*"The only party in New Zealand authorised to own and operate a B Mac decoder is SKY, and, those individuals or businesses which ESPN / SKY have approved to own and operate such decoders."* And although it had no part in the Tribunal decision, their happens to be at least one such authorised B Mac decoder on the premises of Kiwi Cable in Paraparaumu. To the best of our knowledge, however, this functional B Mac unit although at Kiwi Cable has never been used by the cable firm to send programming to its cable system subscribers.

Kiwi Cable began operations at about the same point in time as SKY. The original Kiwi Cable stockholders and management consisted of several individuals in the greater Wellington area who shared a common vision of multiple channel television to New Zealand homes. At least one influential higher level staff member of the Ministry of Commerce was an original supporter of Kiwi Cable.

The Paraparaumu region was selected for a number of reasons as the 'home' of Kiwi Cable. In the traditional cable TV sense, the region was forecast to be inadequately served with off-air television programming for many years. Kiwi Cable believed TV3 would arrive there late, if ever; that the then-new SKY would not arrive there either. Some of this belief was based upon 'inside information' shared with the company from the influential employee of the Ministry of Commerce who was a shareholder. In a sense, Kiwi Cable began its operations because it believed it was receiving 'privileged information' from one or more shareholders.

For a very small, actually quite backward (by world cable TV standards) operation, Kiwi Cable attracted an inordinate amount of attention from the outset. At least one member of the original group had a passion for publicity and this publicity brought inquisitive visits from a wide range of possibly affected companies. SKY was a visitor. So too was Television New Zealand, TV3, even Telecom New Zealand. Each pondered whether this tiny cable system was an aberration or possibly the first wave of a new commercial threat. In the spring of 1990, Television New Zealand's Planning Department created a significant study in which they warned top management of the threat of cable TV. The TVNZ study saw the importation of "*foreign*" television programming "*by cable television systems here*" as a direct threat to the domination of the marketplace by TVNZ. One of the suggested responses suggested TVNZ buy its way into the new technologies to insure that any developments that might threaten TVNZ's terrestrial network would "*have a TVNZ input*" (CTD 9407; p.4). Shortly after the report was written, TVNZ would take a sizeable initial stake in SKY Network. Within two years, TVNZ wholly owned subsidiary BCL would be planning its own test cable television systems (CTD 9407; p.2) and simultaneously investing NZ\$10m in a North Island fibre optic circuit capable of transmitting dozens of television programmes between important North Island centres.

Kiwi Cable's capital demands soon extended the resources of the original shareholders and an outside investor was found; one John Todd Klindworth. He is the son of a relatively well known (in the cable trade), exceptionally successful North American cable television system owner. The 'Senior' John Klindworth began supplying television to small communities in the upper midwestern states (Minnesota, Iowa, Wisconsin, South Dakota) in the late 1950s. Presently the family owned company has cable systems throughout the Caribbean, North America, and reportedly is planning



systems in Africa (i.e., The Gambia). The 'younger' Todd is bright, proudly a 'world-citizen' and always in a hurry to move on to "the next deal." He lives in a jet-set world populated by a relatively small cadre of property traders and financiers characterised by agreeing to NZ\$10m stock exchanges over casual handshakes that culminate hurried business lunches at airport restaurants. Because most of Todd Klindworth's investments are outside of the USA proper, and privately held, not alot of what he does is subject to inspection in a public record.

Klindworth's involvement in Kiwi Cable is one of those "not for public record inspection" investments. At his word, Todd Klindworth owns Kiwi Cable. At his word, he has invested upward of US\$2,500,000 in the system.

A number of experienced American and European cable operators have visited the Paraparaumu site of Kiwi Cable. The company is housed in a purpose built building that would perhaps be more at home in the Caribbean. The most impressive part of their installation is outside; a pair of large (by any standard) parabolic dishes. One, a Scientific-Atlanta 10m az-el (steerable) dish could be duplicated today for around NZ\$132,000 through any number of second-hand satellite dish selling firms in North America. There were originally a pair of the S/A 10m dishes brought to New Zealand; a dream-filled entrepreneur actually purchased two of these antennas and had them shipped here in the late 1980s. Klindworth found the dishes, and many miles of aluminium jacketed coaxial cable, stored on South Island. As recently as September 1993 Todd Klindworth offered the second S/A 10m antenna to a New Zealand firm for the bargain price of US\$10,000. More recently the second 10m antenna apparently was shipped in crates to Tahiti. This specific model was built in approximately 1984 and is therefore ten years old today. The second functional Kiwi Cable dish is quite awesome; a 16 metre parabolic that reportedly was first used in Wisconsin by American firm Western Union as an uplink for some of the very first cable television (via satellite) experiments of the late 1970s. When Western Union sold the dish, it is believed to have gone to Hawaii where Klindworth discovered it in crates; unassembled. Dishes of this size and class are more of a novelty than being in demand today since few satellite uplinkers or downlinkers would ever have need for a dish larger than 10m. It is difficult to affix a value to the 16m monster-dish today; nothing quite like it is still offered in the marketplace new and as a used antenna very few firms would find it an attractive buy; at any price. Still, it is large, it is capable of digging out very weak signals from satellites very far away (satellites never intended to provide service to New Zealand) and this dish has become something of a 'loaded gun' for Todd Klindworth. The threat of what he might do with it has been far greater than anything the dish has accomplished to date. A detailed engineering analysis of actual reception with the monster dish, from American satellites pointed north into North America, has been shown to CTD. As a document the report should be non-political but one of the conditions attached to our inspection of the satellite by satellite 'log' included our agreement not to publish the data we saw. Klindworth himself has dropped 'titbits' of the report where he saw the information gaining him some sort of political advantage over the likes of SKY or TVNZ. Typical of those who have heard such 'titbits', SKY's John Fellet relates how executives of TVNZ once met to discuss "*Klindworth's sweet spot*;" their own misinterpretation that Kiwi Cable had found fortuitous reception from American satellites only after great engineering skills were employed. Klindworth chuckles at such stories; it obviously amuses him to know his monster dish has TV execs in this country concerned. The truth is far simpler. Anyone with a 16m dish virtually anyplace in New Zealand could do the same thing. And that is? Remember, we studied the engineering report:



Yes, there are around a dozen US (and Mexican) satellite channels received well enough to be usable on a New Zealand cable system. No, you wouldn't really use them. Why? *"Received well enough"* is a very qualified statement. To be really useful, well, perhaps a 30m dish might do it. And even Klindworth doesn't have one of those in crates in Hawaii. To this point the 16m dish has been a business tool of persuasion. Its' use to produce new channels for Kiwi Cable has never materialised.

Visiting cable operators with technical backgrounds give mixed, generally low, marks to the technical interior of the unusually designed building. One told CTD, *"It is as if someone went through every catalogue ever issued in the cable field and said 'One of those, that one, two of those ...'."* If there is an engineering plan to the twin upstairs rooms that house the heart of the system, it escapes the casual observer. A Wisconsin cable operator remarked, after a tour, *"The first thing I would do is shut it down for a month and start over. Most of what you need is there all right, but it needs a proper engineer to put it right."*

The Kiwi Cable 'plant', those wonderful sections of coaxial cable, amplifiers, power supplies and customer tap-off devices that are supposed to earn the firm money, barely dent the available audience potential. The firm claims *"more than 50% penetration"* where the cables do go, but it is inescapable that if Todd Klindworth has spent *"upwards of US\$2.5m"* on this system to date, not very much of that has gone into the cable system proper. The Tribunal decision of October 6th said of the system:

*"Kiwi Cable operates a cable television network which provides its subscribers, who presently number about 500 ... ."*

Enter United Investment Holdings, a Denver (Colorado) firm. UIH purchased an interest in Kiwi Cable earlier this year (SatFACTS, September 1994; p.5), at about the same time our New Zealand publication The Listener was publishing an interview with Kiwi Cable's **Tony Goodman**. In that interview Goodman announced they would be spending NZ\$14.8m or more to install fibre optic cable all along the (south) western coast of North Island, as far as Wanganui in 'phase one.' (CTD 9405, p.25) The corporate alignment after UIH joined the fray has never been announced and 7 months after Goodman's interview no major new construction is evident although Goodman had told CTD, *"We plan to spend \$5.2m on this expansion in 1994, another \$9.6m in 1995."*

UIH is akin to a wealthy-cable-operator's club. Take all of the major big name players in cable in North America and toss them into an airport lunch meeting at a swank restaurant. UIH emerges and with their 'spare change' they agree to investigate cable project holdings around the world. The largest cable operator in the world, TCI, is a stakeholder. TCI also owns a chunk of SKY Network. Yes, the plot thickens. Recently UIH has been visiting throughout the South Pacific chasing down both cable and satellite programme delivery options open to it. An announcement that UIH has taken a transponder on PAS-2 would not come as a total surprise; it is believed they already plan 4 pay-TV service channels for Australia via OPTUS.

The Copyright Tribunal sat in the matter of *"Kiwi Cable Company Limited, of Wellington, New Zealand and ESPN Incorporated, a corporation of New York, United States of America."* SKY Network was not a direct participant in the dispute although SKY is undeniably the company with which Kiwi Cable has its problems. As CTD related in September (CTD 9409, p.2), SKY has a corporate policy to not allow cable companies in New Zealand the opportunity to carry its programmes to cable subscriber homes (see John Fellet interview, p. 8). In the Kiwi vs. ESPN



matter, SKY also refused to grant Kiwi Cable permission to own and use its own B Mac decoder to pick ESPN directly from satellite for cable carriage. This, however, never became a part of the record as Kiwi Cable struck out even before it came to bat.

Here is the sequence of events:

1) Kiwi Cable files a motion with the Department of Justice requesting a hearing before the Copyright Tribunal. Kiwi Cable claims that under the Copyright Act of 1962, programmer ESPN cannot deny Kiwi Cable's request to carry the ESPN satellite fed programming.

2) ESPN files a response in which it says that the Tribunal lacks jurisdiction in this matter, and there is a sheath of legal documents which purports to back up this position. ESPN asks that the Tribunal dismiss the application of Kiwi Cable.

In May of this year a preliminary meeting is held at which the Tribunal, not holding hearings very often, refreshes the rules of engagement. This is as much for the benefit of the Tribunal as the two sparring partners. An official, but preliminary hearing is set for June. This is later put-off until August 8th. This hearing will consider only the singular question of jurisdiction: Does the Tribunal, in fact, have the legal power to hear this case?

3) To support the arguments of Kiwi Cable, John Todd Klindworth is deposed on May 30 (1994) before a notary public and he gives 'sworn testimony'. To support the arguments of ESPN, one Edwin Michael Durso gives a similar sworn testimony from New York on 14 June (1994). In New Zealand, law firms representing the two sides polish up the affidavits and prepare to turn them into the Tribunal for consideration. The Tribunal has established a set of rules for the depositions, with a time table. One of the 'rules' set down requires that there be an adequate 'response time' between an affidavit (deposition) and the hearing schedule to allow 'the other side' to respond to any depositions.

Both sides are arguing their cases, one from New York City and the other from the British Virgin Islands, before a Tribunal in Wellington and through their respective Wellington law firms.

4) On August 5th John Todd Klindworth, quite outside the rules, prepares a new affidavit. Counsel for ESPN objects to the late filing and notes he is unable to take advice from his client because of the breach of the filing deadline rules. Ultimately the Tribunal will accept the second Klindworth affidavit, and then ignore it. Whatever Mr. Klindworth had to say his second time around is totally lost to the hearing. The Tribunal is not pleased with this breach of the timetable, and says so, in its decision.

## THE CASE

Keep in mind this is not a hearing on the merits of the ESPN contract, the legality of its exclusive nature, nor on the stature of either firm in the business community. This is a hearing that focuses very narrowly on one question:

Under the 1962 Copyright Act, does Kiwi Cable have status before the Copyright Tribunal and is the Tribunal bound by the law to hear this dispute?

We already know the answer; the Tribunal found they had no such authority. End of case?

Perhaps.

Under s 38 (3) of the Act, it is true that the Tribunal can (if it deems it appropriate) demand that an applicant (Kiwi Cable) be granted a licence. That is the result Kiwi Cable sought.



The Tribunal found, in its interpretation of the 1962 Act, that before a licence can be demanded under the Act, the object of the licence must be a literary work. Those are two pivotal words: literary work.

The Tribunal wrote:

"The Act requires literary works to be written or fixed in some material form, as set out by the Act. The words used to describe the material form have included "tangible" and "enduring" and "accessible". There is no evidence as to the exact nature of satellite signals. While they may be accessible in a limited sense, they may be neither tangible nor enduring. If so, they do not have the necessary characteristics to qualify as literary works under the Act."

In summary, the Tribunal wrote:

"The Tribunal has no jurisdiction to order an entitlement to a licence in ESPN satellite signals, whether encrypted or not, if they are not a literary work within the definition of the Act."

To emphasise their decision they wrote:

"While satellite signals may contain a literary work they are not in themselves a literary work. To contend otherwise may be *to confuse form with the content*" (emphasis added).

Kiwi Cable, in arguing for a licence, was asking the Tribunal to update the very antiquated definitions one finds in the 1962 Act. ESPN argued, successfully, that:

"The jurisdiction of the Tribunal pursuant to s 38 of the Act is limited, in terms of s 36 of the Act, to declaring an entitlement to a licence on behalf of the owner of the copyright in a "*literary dramatic or musical work or in a sound recording or a cinematograph film*". The encrypted satellite signals which ESPN transmits to New Zealand do not fall within the terms of this definition."

Does that mean that ESPN admits its encrypted signals cannot be protected from use by unauthorised persons under present New Zealand law? If encrypted satellite signals are not in the appropriate form of a "literary work" as defined by the Act, and therefore they have no standing as a copyrighted work under the Act, does it not follow that the encrypted signals also have no standing for the protection of the 1962 Act? Is this not the same as an attaché to the Russian Embassy claiming diplomatic immunity from a local law?

So what is to stop Kiwi Cable from helping themselves to the ESPN satellite signal at their cable office now that the Tribunal has found the "encrypted satellite signal does not meet the definition of a literary work?" Can ESPN claim protection of their works under the 1962 Act, but at the same time refuse to grant licence rights under the same Act?

Citing a more recent decision, the Tribunal wrote:

"There is no dispute as to ESPN's copyright in (their) scripts." Actually, the matter was not considered in the presentations and the lack of a 'dispute' really means the issue was never pursued. The case which the Tribunal cited was *Television New Zealand v Newsmonitor Services Limited* (Auckland High Court, CL 79/91, 15 November 1993). In that decision the court found that TVNZ's programme scripts and reporters' scripts, whether on paper or in the computer, were literary works and TVNZ holds copyright on them.

Confused? If a script is stored in a computer, is that not the same as storage in an electronic medium where words and numbers are replaced with electronic signals and symbols? That MS-DOS or AmiPro is distinctly different from any printed language seems to have escaped the



understanding of the Tribunal. That ESPN's encrypted signal is no more an exotic language than MS-DOS also seems to have gone by unnoticed. For they said:

"There is no evidence as to the exact nature of satellite signals. While they may be accessible in a limited sense, they may be neither tangible nor enduring."

"This conclusion is consistent with the decision in International Business Machines Corporation v Computer Imports Limited [1989] 2 NZLR 395 and in Computer Edge Pty Limited & Anor (1986) 65 ALR 33 where object codes in computers were held not to be literary works, (where the Judge wrote):

"It seems to me a complete distortion of meaning to describe electrical impulses in a silicon chip, which cannot be perceived by the senses and are not intended to convey any message to a human being and which do not represent words, letters, figures or symbols as a literary work; still less can a pattern of circuits be so described."

And, this reminder. The Tribunal ended with:

"While satellite signals may contain a literary work, they are not in themselves a literary work. To contend otherwise may be to confuse the form with the content."

Let's look at this from additional directions.

1) The Tribunal found that ESPN's encrypted signal, "electrical impulses which cannot be perceived by the senses and are not intended to convey any message to a human being and which do not represent words, figures or symbols" to not be a literary work.

2) The Tribunal found that ESPN's copyright for the written scripts, or content of the programming, "is not in dispute". It cited a case involving TVNZ and an off-air monitoring company as its rationale for this aspect of the decision.

3) THEREFORE, if ESPN's encrypted satellite signal is not a literary work, a licence between ESPN and SKY does not fall within the jurisdiction of s38(1), s38(2). Consequently, the Tribunal does not have status in this matter and lacking jurisdiction, the Tribunal dismisses the case.

### RAMIFICATIONS OF DECISION

The Tribunal has ruled, in essence, that when a television programme is broadcast in an encrypted mode, it loses its right to claim for copyright violation. Going further, the Tribunal has also ruled (and cited an Australian case as precedent) that "electrical impulses not intended to convey a message to a human being" cannot be protected by copyright.

This decision, and the way in which the decision was found, establishes precedent which many people in the communications business in New Zealand may not like. SKY is one of these.

1) SKY transmits its programmes using a form of encryption known as Videocrypt.

2) In Europe, Videocrypt as a scrambling mechanism to force subscription and payment for service has been repeatedly 'violated' by talented 'hackers'. In Ireland, Denmark, Germany and Spain, government agencies not unlike our Copyright Tribunal have ruled in almost the exact same manner. In those countries, it has been ruled that encrypted signals using a 'copyrighted algorithm for encryption' have no copyright protection. In those countries it is perfectly legal to purchase in normal public shops 'pirated decryption cards' which allow the user to view scrambled broadcasts without subscribing to the broadcasts.

The decision of the New Zealand Copyright Tribunal makes the same decision. That the decision applies to ESPN encrypted programming broadcast by satellite rather than by SKY via UHF transmitters is not relevant.



This would appear, then, to signal to New Zealand entrepreneurs that by the Tribunal's decision they can immediately go into the business of offering 'pirated Videocrypt Cards' to the New Zealand public that wishes to receive SKY broadcasts without paying SKY's rates. And while certainly the first shop keeper to openly offer such cards can expect a suit from SKY, armed with the Tribunal's decision in the ESPN matter, even a moderately skilful attorney should be able to get the 'pirate card seller' off.

SKY, clearly, did not anticipate this sort of fallout from the Tribunal hearing.

Taking this into another venue, there is the matter of how Kiwi Cable could respond. If ESPN's signal is not protected by the Copyright Act of 1962, what is to prevent Kiwi Cable from using that B-Mac descrambler they have to carry ESPN on their cable system? Or, what is to prevent Kiwi Cable from taking the presently encrypted SKY Sports channel on their cable system and leave it encoded on the system? What then?

Once on the system, could not Kiwi Cable then offer its subscribers who want the SKY Sports service a special price on a SKY-style decoder which they provide with a token (\$5 per month) 'pirate card' that allows the subscriber access to the SKY Sports signal? SKY's normal retaliation would be to shut off the subscriber authorisation card number. But, with 'piracy cards', the card user no longer depends upon SKY for his authorisation; the pirate card bypasses the SKY authorisation (1).

In CTD for September (9409; p.8-9) SKY's John Fellet said he was not going to allow SKY to deal with 'private entrepreneurs' who were requesting SKY assistance with 'private reflectors' (on-channel booster relays), or, who wished to carry SKY programming on their planned cable systems. The 'policing authority' for SKY until now has always been:

- 1) Their unique ability to turn an individual subscriber on, or off;
- 2) Their perception that they have certain copyrights to the encryption routine used for their scrambling.

If the Tribunal decision is allowed to stand, a 'private entrepreneur' no longer requires SKY permission for anything; he may build his 'reflector', or carry SKY on his cable system, provide SKY decoders from alternate sources and provide 'pirate cards' in lieu of the genuine SKY card.

No, SKY should not like the depth of this decision. At all.

Finally, there is the matter of all of those soon-to-be-encrypted compressed digital video TV programmes radiating down on New Zealand from a variety of satellites. If the Tribunal found that B-Mac encrypted signals had lost their right to copyright, it follows that compressed digital video signals will have no copyright liability in New Zealand either. They, like the B-Mac signals, are nothing more than "electrical impulses which cannot be perceived by the senses and are not intended to convey any message to a human being."

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1/ **European Scrambling Systems (Circuits, Tactics and Techniques)** by John McCormac (Book 4, 1994 version) from Waterford University Press, 22 Viewmount, Waterford, Ireland (FAX: 00-353-51-73640; BBS 00-353-51-50143 HST 14K4 8N1 ANSI) at UK36 (sterling)) provides totally complete instructions for violating Videocrypt with nothing more complex than an IBM format computer, a small collection of hand tools, and a few hours time spent on your kitchen table. McCormac's **Hack Watch News** (12 issues, UK77 sterling) provides a continuing monthly update. VISA is accepted.



SKY is not the only potential loser here. Kiwi Cable lost at the starting gate when they failed to qualify. They could also lose closer to home; Kiwi Cable encrypts all of its programming within its cable system. Individual subscribers are 'authorised' channel by channel from a computer located at the Kiwi Cable office that sends unscrambling instructions to the subscriber's set-top converter. Under the Tribunal ruling, the individual home subscriber, like the individual in-home SKY viewer, is now free to 'bypass his authorisation centre' within his set-top converter with his own 'pirated software.' In other words, merely placing a signal on the cable into the home provides the subscriber all he or she really needs to unscramble the transmission. And the Tribunal suggests this is outside of the 1962 Act and perfectly OK. Others, such as the Telecom fibre optic / coaxial cable 'test' of cable TV in the Auckland suburbs face a similar type of problem if they elect to send all of the signals into the home proper.

### COUNT TWO: LOSS AGAIN

The Tribunal, while deciding early that it lacked jurisdiction because of its interpretation about encrypted signals, found additional reasons to deny Kiwi Cable the opportunity to have its case heard. The first involved the ancient definition for cinematograph film. The belief has been that a logical extension of the 1962 definition of cinematograph film would include television transmissions. The Tribunal agreed in part and disagreed in part.

"Kiwi's first ground of opposition treats programming and cinematograph film as being one and the same. *We do not accept this* (emphasis added). A cinematograph film is distinct from a programme."

The Tribunal then went on to review the Television New Zealand case against Newsmonitor Services Limited and held that:

- 1) The words spoken by a reporter, whether from a printed script or a computer-stored script, were subject to copyright under the 1962 Act;
- 2) There is cinematograph film copyright in the material which was pre-recorded on video tape prior to being transmitted (by TVNZ);
- 3) There is, separate and distinct from the above two examples, "Broadcast Copyright" in each of the programmes transmitted by TVNZ.

Broadcasting copyright draws from the Broadcasting Act of 1989. S 15(1) of that Act provides:

"Copyright shall subsist, subject to the provisions of this Act, in every programme broadcast by a broadcaster."

Thus, in a television programme broadcast to the public, separate forms of copyright may exist independently within a television programme. Logically, such a "Broadcast Copyright" would extend to the ESPN signals as well. A live sports programme, such as a play by play telecast of a rugby match, fails on two counts:

- 1) There is no script
- 2) Instant replays aside, there is no cinematograph (film) transmission; everything is 'live'

In the best case, such a transmission might attract 'Broadcast Copyright' under the 1989 Broadcast Act. In the case of ESPN, where the programme is encrypted and therefore are "electrical impulses which cannot be perceived by the senses," the application of the 1962 Copyright Act and the 1989 Broadcast Act is much less clear.

### TRIBUNAL ADVICE TO KIWI CABLE

The Tribunal, although it ruled against Kiwi Cable, did not do so without leaving the door for resubmission slightly ajar. It wrote:



"A difficulty for Kiwi in the present case is with the wording of its application. The Tribunal is not empowered to declare an entitlement to a licence in a programme, in a broadcast, or in an encrypted satellite signals, which is what Kiwi seeks." It then suggests ways for Kiwi Cable to resubmit its application which might alter at least some aspects of the decision.

The Tribunal's power only comes into play after several acts have been committed by the programmer. For example, s 38(1) requires that before Kiwi Cable can ask for Tribunal intervention to force ESPN to offer its programming to Kiwi, there must be a "licensing scheme" in operation. By definition, a "licensing scheme" exists only when two or more licences have been granted. A single, "exclusive" licence does not constitute a "licensing scheme." ESPN contends that because SKY is the sole licensee in New Zealand, the provisions of s 38(1) do not apply. Kiwi Cable contends that world wide ESPN has hundreds of licences operating and that the universe here is larger than the single licence granted to SKY for New Zealand.

The Tribunal may have erred on this matter, but for the moment it is of limited concern. That there are dozens of additional B-Mac decoders operating inside of New Zealand, each with a licence from ESPN to receive its signals for private or (motel, pub) commercial use, is well known (although, as noted, apparently not known to the Tribunal). That SKY is an "agent" for ESPN in New Zealand for these non-SKY B-Mac decoders is well established. In CTD for September (9409; p.12) John Fellet is quoted as stating:

"We might elect to become an agent for ESPN service via Palapa here in New Zealand and rather than simply denying that service here, we would become a part of the revenue stream for it being available here via Palapa. Actually, we already do that in hotels in areas where SKY does not reach; they come to us after arranging their own satellite dish installations and we sell them an NTSC B-Mac decoder. We then go through the procedure of having the decoder authorised, and they pay us a monthly ESPN service fee... ."

That the Tribunal did not know this, that Kiwi Cable erred by not bringing this to the attention of the Tribunal, is now obvious. That this knowledge might have changed the decision is far less certain.

On this topic the Tribunal wrote:

"The only party in New Zealand with an authorised B Mac decoder is Sky Network Television Limited.

"A licence scheme is an overall plan specifying the class or classes of cases in which licences will be granted. If ESPN chooses to grant only one licence in New Zealand and that licence is exclusive, that is inconsistent with the existence in New Zealand of a licence scheme in the terms of the Act."

In actual fact, there are two separate, authorised, B-Mac decoders for SKY. One resides permanently at the headquarters of TVNZ where the incoming SKY signal is decrypted before transmission to SKY via terrestrial link. The second, a 'hot standby, normally resides on a shelf at SKY headquarters, 10 Panorama Drive, Mt. Wellington.

## IN CONCLUSION

The Tribunal wrote:

"While the Tribunal has jurisdiction under s 38 to order entitlement to licences in a situation where a licence scheme is already in operation, its jurisdiction does not extend beyond that, to situations where no licence scheme is in operation or where there is an exclusive licensing agreement between two parties.



"If the Act intended to allow the Tribunal to make orders where an exclusive licence exists, or where there is no licence scheme in operation, then the Act would have to make that clear. For example, the Act could provide for the Tribunal to make such orders in ANY case where a licensor has copyright material and there is a party wishing to deal with it. In the absence of such statutory direction, the Tribunal has no jurisdiction to interfere in the exclusive licence between ESPN and SKY in New Zealand.

"In the circumstances of its current contractual agreement with SKY, it cannot be said that ESPN is unreasonable in refusing to grant a licence to Kiwi to transmit the ESPN service in New Zealand."

### **POST -MORTEM**

Comments on the case from SKY have been withheld pending a decision from Kiwi Cable on an appeal. SKY's Fellet told CTD in our September issue:

(With respect to SKY authorising cable systems to carry our programming) "We will study each situation on a case by case basis, but (still) must await the outcome of the Tribunal hearing in any event."

On November 7th Fellett told CTD:

"While we understand their grounds for appeal are very poor at best, we must still wait to see what they do. When we know the matter is 'dead' then we will move on to finding ways to deal with cable on a positive basis."

Will Kiwi Cable appeal?

We talked with Kiwi Cable's Mark Marfell also on November 7th.

"It is my opinion the matter is finished. We have begun to import sports programming on tape, and with the new availability of Prime Sports now (PAS-2) plus the upcoming availability of other sports through Palapa C and Asiasat 2, we no longer consider the ESPN service to be that important."

And that would appear to be the end of the matter; at least until the new Copyright Law becomes effective.

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## SKY EXTENSION TO SHADOWED AREAS

# MINISTRY OF COMMERCE APPROVES REFLECTORS / On-Channel Boosters

*Rules of the game changed?*

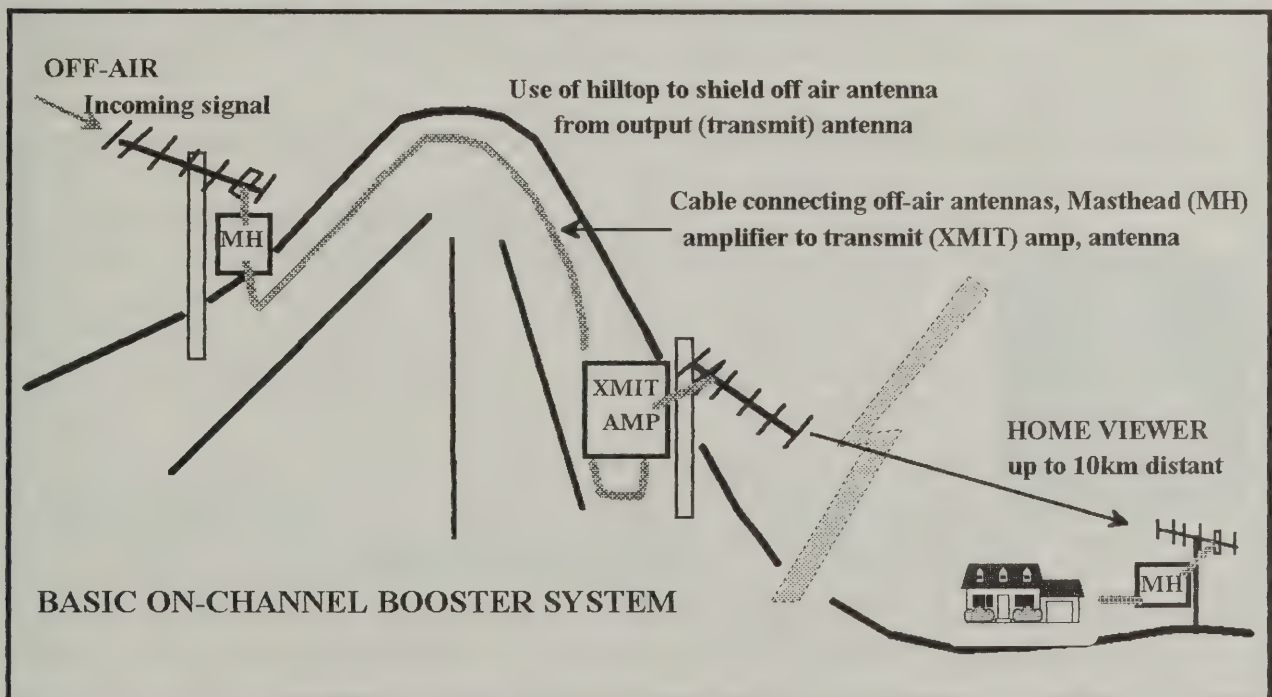
### DO IT YOURSELF

The Ministry of Commerce has approved a scheme to licence a device that can extend UHF television signals into relatively small 'pocket areas' which are shadowed by terrain from direct reception. The new licences are relatively inexpensive to procure, the paperwork is minimal, and the equipment required to extend UHF signals could cost as little as \$700 at aerialist-installer wholesale pricing. And breaking with tradition, licences may be held by private individuals, or business entities. Previously all UHF telecasting licences were granted only to holders of Management Rights. The new 'on-channel booster' stations will operate outside of the Management Rights scheme, and will be 'secondary users' of the spectrum. There are restrictions and caveats:

1) Booster stations must not cause interference to any other class of service (such as cellular telephone).

2) Booster stations are responsible to not cause any interference to people who have direct reception of the same (or other) UHF stations which the booster station is repeating. Demonstrating that no such interference will occur is a part of the application procedure.

3) Booster station operators are obliged to notify the transmission originator (such as SKY, or TAB, et al) of their station's operation. However, the rules do not require the booster station operator to secure the permission of the originator to operate nor to be licensed.





4) Booster station operators are restricted to 0.5 watt radiated output power (eirp) per channel; a point we shall return to shortly.

5) The new licences are called 'Multi-Frequency Licences' (MFL) and are being granted under provisions of S.48 of the Radiocommunications Act.

If a single booster station (i.e., system) will boost (on channel) programme channels from more than a single holder of Management Rights (such as SKY and TAB), two separate licences will be granted. This does double the cost of annual licensing (typically \$45 per frequency per year).

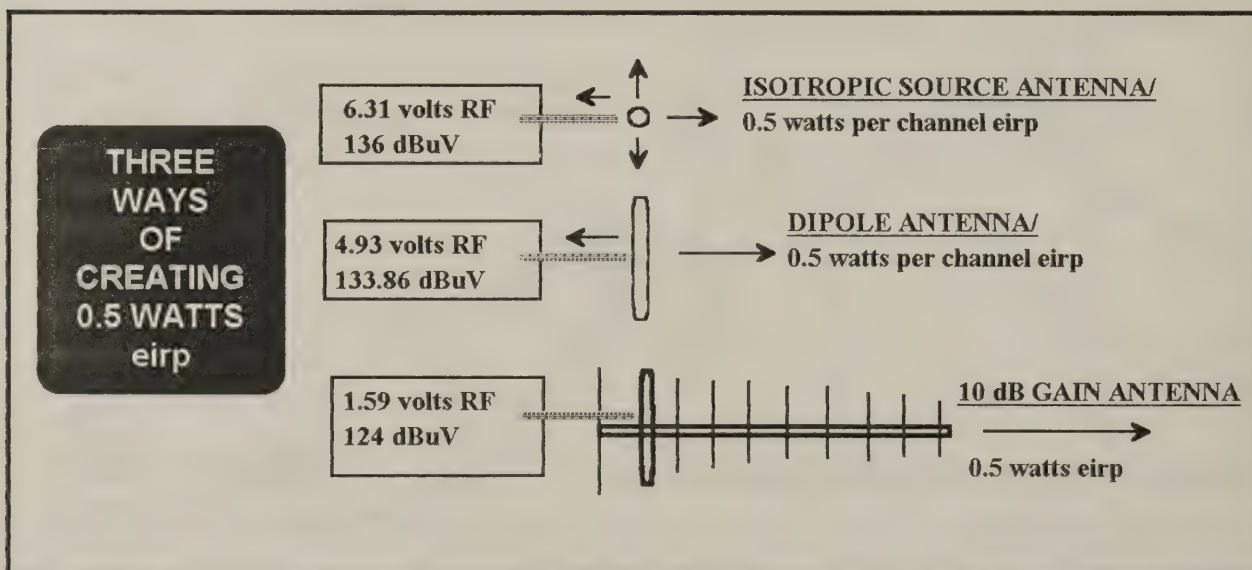
If a booster station seeks to boost (on channel) both UHF and VHF channels into a pocket area, unfortunately the new Multi-Frequency Licence scheme does not allow for joint licensing of the VHF channels. The Ministry notes that when the VHF Management Rights programme is implemented, they will revisit this question. In the interim, they suggest VHF boosted channels should be licensed under the existing Radio Apparatus Licence system. As a practical matter, virtually no would be installer of a VHF booster will be able or willing to proceed to licensing under the Radio Apparatus Licence programme; *the system is simply not user friendly*. So for the moment, on-channel boosting using licensed, legal stations will be limited to UHF band IV and V channels.

6) Term of licence is five years.

### Practical Designs

Most installers will be concerned they are getting maximum coverage bang for their buck. The Ministry, and the radio inspection chaps, will be concerned your achieve your coverage by not exceeding their maximum radiated power criteria nor causing any interference. As a practical matter, given the type of off-the-shelf equipment likely to be employed in booster installations, about the best you are likely to do is just nudge the radiated power limitations anyhow.

The power allowed is 0.5 watts eirp; eirp is shorthand for effective isotropic radiated power. This is the sum of your booster-amplifier (i.e., transmitter) output power level added to the forward direction gain of your transmitting antenna. The important point to keep in mind is that your 'eirp' is the sum of two gain numbers; if you increase the gain of the antenna (by selecting a higher gain transmit antenna), you can reduce the actual power level of the amplifier and still achieve the same 'eirp'.





The installer is dependent upon two as-supplied specifications from the equipment supplier(s):

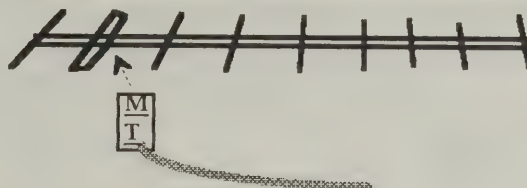
- 1) The forward direction gain (in dB over an isotropic source; dBi) of the antenna
- 2) The output power level (in dBmV or dBuV) for the booster amplifier.

Antenna gains supplied on data sheets are generally over-stated; that's an unfortunate part of the hype in the antenna selling business. Gains may be stated as so many decibels above a dipole reference antenna (dBd), or reference an isotropic source antenna (dBi). Antenna gain reference a dipole is 2.14 dB less than gain reference an isotropic source and it is important you know which reference is being used for your own system calculations. Another concern is the reference impedance of the antenna. If the antenna is nominally a 300 ohm design, but will be used in a 75 ohm (coaxial cable) configuration, you are allowed to subtract 2.0 dB of antenna gain to represent the power loss you will experience through a standard 300 to 75 ohm matching transformer.

**Bottom line:** An antenna *claiming* 15 dBi of forward gain with a 300 ohm feed impedance will, in your system, have 13 dB of gain reference a dipole and 11 dB of gain after the losses in a matching transformer. 11 dB, then, becomes your system computation number for the antenna portion.

The amplifier you select for on-channel boosting must be capable of supplying the required output power level for each of the UHF channels which you will be 'boosting'. If you are boosting only SKY channels, the power level to be measured is for each of the three (or four) channels; add TAB, and it is for five channels. Only a handful of generally available amplifiers claim the output ability to do this job; the installer is warned that advertising claims are not the same as actual performance and as a part of your own system installation you will have ample opportunity to verify the accuracy of the amplifier manufacturer's claims.

Generally speaking, you want to source an output amplifier which is capable of delivering as many as six independent channels at an output in the 1.5 to 2.0 volts per channel range. That's the same as +64 dBmV / +124 dBuV to +66 dBmV / +126 dBuV. Be especially wary of amplifiers which claim a maximum output capability in this region, but then in the fine print suggest you actually operate the amplifier at 3 dB lower levels to avoid sync compression. Or, amplifiers that rate their outputs in this range and then in the fine print tell you this is for single channel operation only.



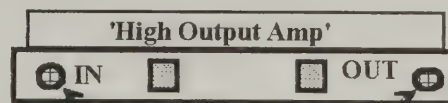
**MANUFACTURER CLAIMS:**

15 dB gain reference isotropic

☒ You subtract 2.14 dB for dipole reference

No loss in MT (matching transformer)

☐ You subtract 2.0 dB for real losses



**TIP:** Belling Lee (PAL type) plugs are NOT designed for RF signal voltages over +120 dBuV and amplifiers using these plugs over this level should be avoided!

**MANUFACTURER CLAIMS:**

126 dBuV output

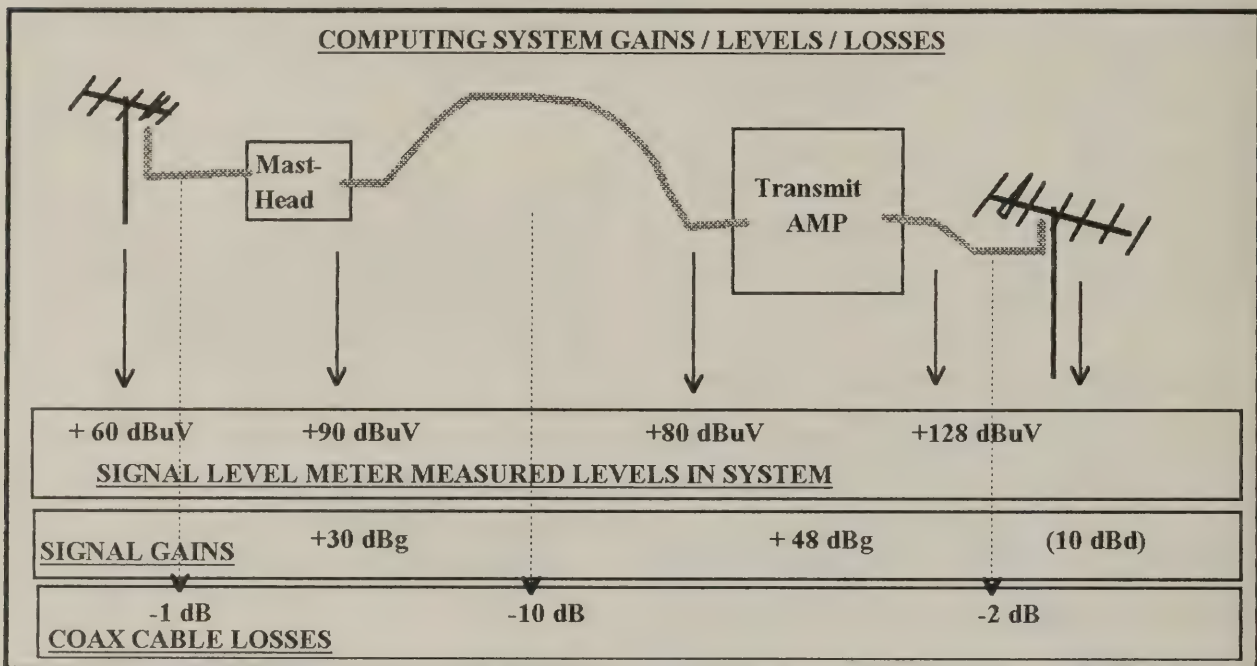
☒ You ask "How Many Channels?"



## System Gain

So far we have discussed only the output side of the booster station. In most booster installations, there will be a pair of amplifier units; one located at the input (off air) antenna side, the other located at the output (transmit antenna) side. In calculating your own system, you must start with the off-air signal level (as measured with your input antenna connected to a signal level meter). To that you add the (signal voltage) gain of your input (masthead) amplifier and the (signal) voltage gain of your output (transmit) amplifier. We diagram such a computation here.

In the complete system gain computation, you also have some losses to subtract. The cable that interconnects the input antenna amplifier to the output (transmit) amplifier will often be 30 to 100 metres in length in a typical installation. The loss in this cable, at the highest frequency channel to be boosted in your system, is subtracted out of the overall circuit gain to arrive at the final computation of output radiated power.



## System Stability

An on-channel booster functions by taking a relatively weak signal (as received from the off-air antenna), amplifying it (with a masthead amplifier), and then connecting this pre-amplified signal(s) through a length of cable to a new power amplifier. After the 'transmit amplifier', the signal is connected to a second set of antennas which radiate (transmit) the boosted (amplified) signals off through the air to distant receivers. All of this happens on the same channel or channels.

In electronic terms, there is ample opportunity here for the system to 'oscillate' or 'go into feedback mode'. This is not good; in fact, if this happens your system is shut down.

Feedback mode occurs when the radiated signal from the transmit antenna finds its way back to the original receive antenna. This creates a 'loop' which is self-perpetuating; the same signal goes around and around and in the process this blocks any new signal from getting into the input antenna side. Think of it as freeze (still) frame on a VCR gone berserk.

To insure there is no feedback loop, some precautions must be taken.



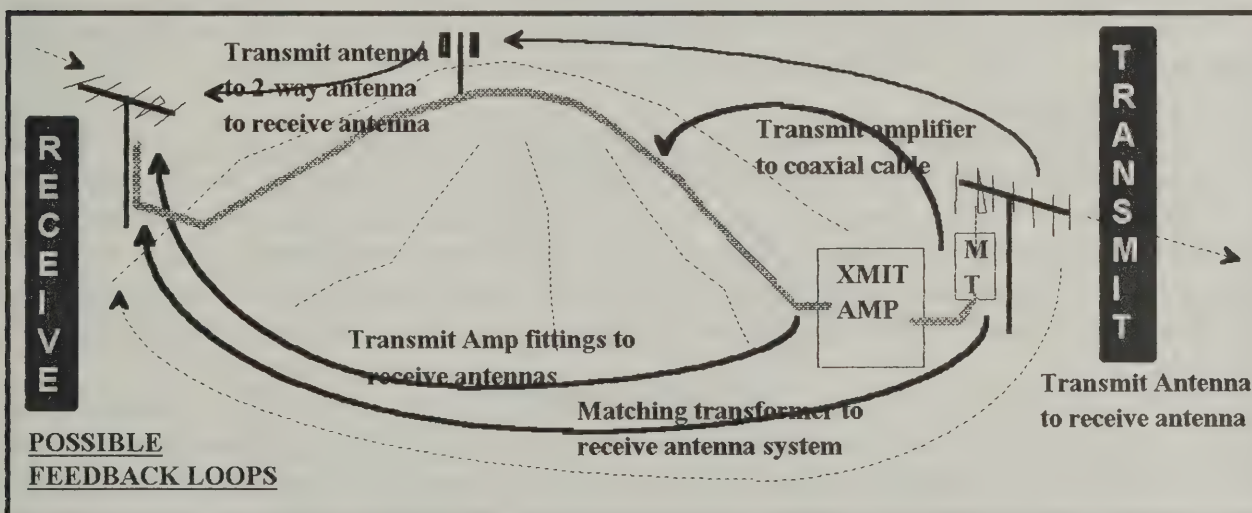
1) Flip polarities. If the original incoming signals are polarised vertical, the new boosted transmit signals should be horizontally polarised. This provides a measure (in technical jargon, around 30 dB) of 'isolation' between the input and output signals.

2) Put space between the input and output side antennas. How much space? Generally 30 metres is a minimum but this also depends upon the 'shielding' that you can achieve between the two sets of antennas. If you can place the off-air receive antenna (plus its masthead) on one side of a hill, and the transmit antenna (plus its transmit amplifier) on the opposite side of a hill, the natural 'shielding effect' of the hill will be far more important than the actual distance between the two. Under no circumstances should the transmit antenna system be 'line of sight' to the receive antenna system.

3) Carefully route the connecting cable. The line interconnecting the receive antenna portion to the transmit portion should be a high quality coaxial cable with 90% shielding as a minimum. The cable represents an opportunity for the 'feedback loop' to occur and ideally it will be buried a few cm below ground level to add the shielding effects of the earth to the cable's own shield.

4) Matching transformers, especially at the transmit antenna side, should be very carefully selected. The best option is to not use an antenna that requires a balun / matching transformer; select a transmit antenna that directly accepts 75 ohm cable. A matching transformer housed in a plastic container is very ill advised as the shielding of the plastic to radio frequency signals is zero. The transformer represents a high current point in the system, and most matching transformers are so poorly designed to begin with that you will have impedance mismatch (VSWR) within the unit. This leads to signals that radiate, with a polarity of their own, and that can mean you radiate output signals from the matching transformer back through the air to the original off-air (input) antennas.

5) Other antennas at the site. If the booster site has other antennas for other radio services in place, they can (and often will) pick up the transmit side signal and reradiate it back into the input side antenna. If you have followed all of the rules, and still have 'feedback', try moving the transmit side antenna up and down, left and right a metre at a time. This will help you find a 'null' which minimises the feedback loop.



#### Range

The distance covered by an on-channel booster will depend upon:

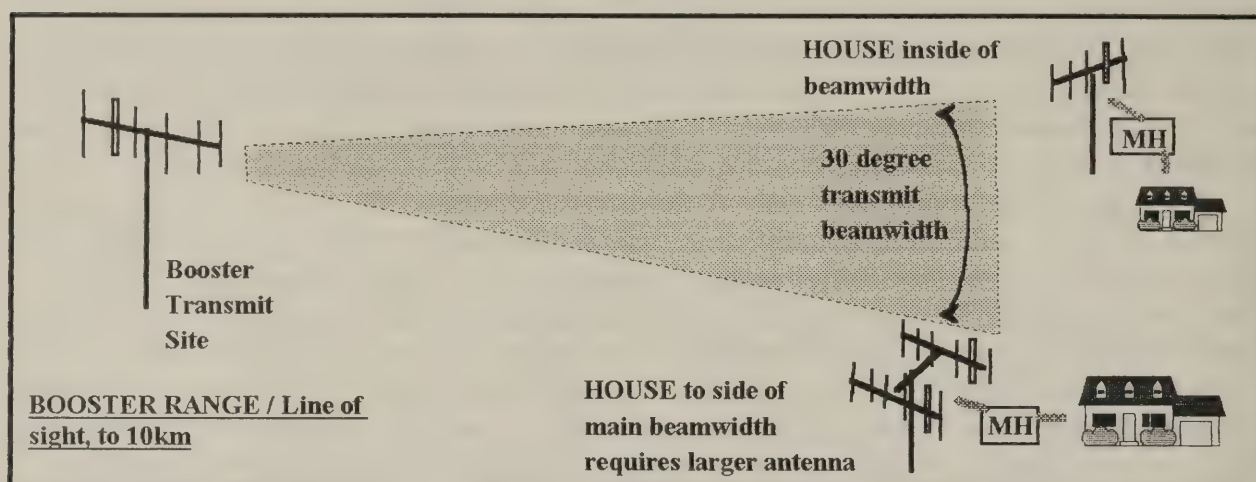
1) Line of sight (any viewer receiving site that can 'see' the transmit antenna site should work)



2) Your transmit antenna pattern (an antenna that compresses the forward direction signal to a 30 degree wide swath will have noticeably reduced coverage 50 degrees off to the side)

3) The gain of the viewer location receiving antenna system (a 10 dBg home antenna coupled to a 20 dB gain masthead would be a common installation). Once you have relaunched the signal through the booster, normal fringe area receiving antenna design practices apply (Tech Bulletin 9303).

Having said all of this, ranges to several kilometres, up to 10 if everything is dead on, are practical.



### Non TV System Interference

The gain-bandpass of an on-channel booster is determined by the amplifier characteristics of the system. A receive-side masthead amplifier that offers 'broadband gain' over a frequency range of 500 to 900 MHz will treat all signals within that range as if they were a desired TV signal. Even above 900 MHz and below 500, you will still have (some) gain from the masthead amp.

The transmit-side amplifier will have similar characteristics. The sum of the 'out of band gain' (at say 470 MHz or 940 MHz) between the two amplifiers can be quite high; enough so that two-way radio systems or cellular telephone signals picked up at the input side will also be amplified and redirected at the output side.

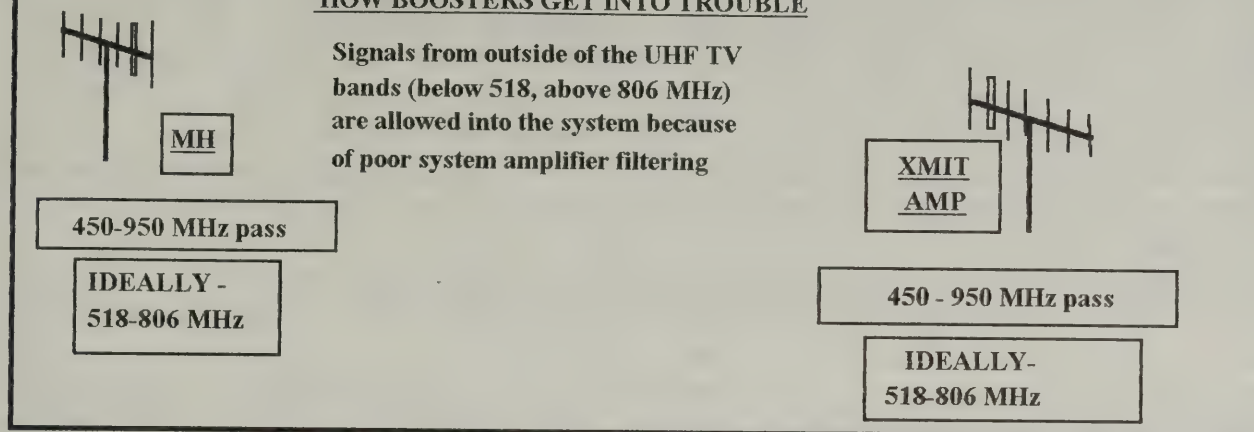
In the original installation for Te Kuiti (See CTD 9409; p.8) the broad band frequency response nature of the installation caused significant trouble for a local cellular telephone site. The answer is to 'narrow band' the broadband system; to reject signals that come into the system from frequencies outside of the required TV channel ranges. Under the Ministry Rules, it is the responsibility of the system installer to take steps to cure such cases of repeated-interference. In fact, if such interference occurs, the licensee is obliged to turn off the system until the problem is corrected.

Rejecting undesired signal sources involves either trapping out the unwanted signals at the input (usually directly after the off-air masthead amplifier), or, channelising the transmit side of the system. In both cases, whether trapping or channelising, the devices you install must be designed to work in a 75 ohm coaxial cable system. Traps, for example, designed to work in a 50 ohm coaxial cable network will not function properly if 'stuck in the 75 ohm coax line'.

1) Traps. This is the least expensive 'fix' but properly tuning up or even checking out such a system will require access to a spectrum analyser. A signal level meter is not a substitute here since



## HOW BOOSTERS GET INTO TROUBLE



you need to see a visual display of all of the signals passing through the system to be certain the trap(s) you are installing are operating after installation on the correct frequency, and, there are not other undesired frequencies getting through the system as well.

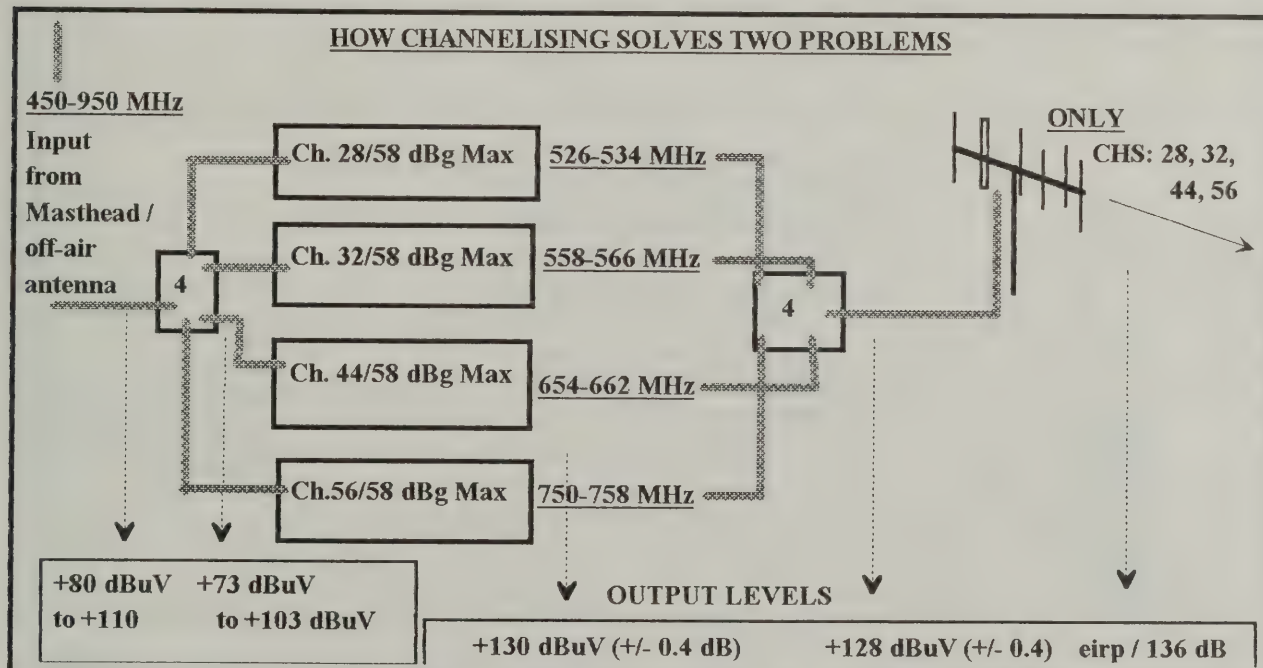
2) Channelised outputs. This costs more money, but has additional benefits. First, channelised (single channel) output amplifiers can be installed and set up with nothing more complex than a signal level meter. Second, a reasonable quality channelised UHF single channel (strip) amplifier also provides AGC; automatic gain control. Why is that good?

Most booster stations will operate with a relatively steady (non-fading) input signal. Unfortunately, there will be times when because of atmospheric conditions the signal level becomes far stronger than 'usual', or conversely, far weaker than usual. Of the two:

1) A weaker signal may reduce the quality of the retransmitted signals to the point where snow (noise) enters the retransmitted signal. In this case, every home receiver viewing the service experiences the same snowy conditions.

2) A stronger signal is more dangerous. If your system is set up to function with a 'normal' input signal level, an increase in the signal level will raise signal voltages through the entire system. If

## HOW CHANNELISING SOLVES TWO PROBLEMS





your transmit output amplifier is operating at close to its maximum output ratings (such as 126 dBuV output for a 128 dBuV maximum output rated unit), the increase in input signal level will be reflected with a corresponding increase in output signal level as well. That sounds all right until you realise that as the input signal continues to become stronger, the output rating of the transmit amplified is exceeded. Now the pictures overload the output amplifier, causing the video sync tips (signal peaks) to be 'clipped' (distorted) in the amplifier. At this point all of the channels on the system begin to 'roll' vertically, the blacks become saturated, and the sound (audio) begins to buzz. Not a happy situation.

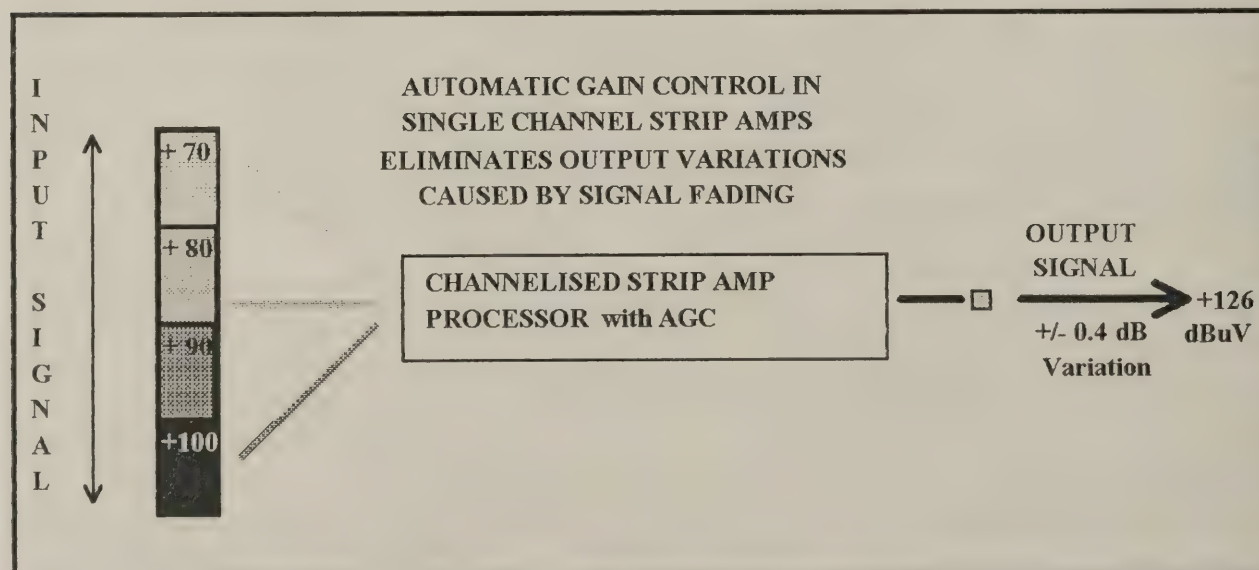
The solution to this is to use an output amplifier that employs AGC; automatic gain control. Now as the input signal from the off-air antenna and masthead amplifier becomes stronger, the AGC system in the channelised output amplifier steadies the signal to its original maximum-adjusted output level. And where without AGC the input signal level might move upward only 2 or 3 dB before you begin to experience the ill effects of overloading, with AGC the signal can move upward as much as 30 dB without reaching the overload point.

All of this is in addition to having a channelised output that also rejects signals that come through the input antennas off-frequency; i.e., cellular telephone and two-way radio. Of course what started out as a simple, relatively inexpensive system has now become slightly more complicated and in the process it has also become more expensive. But, it has also eliminated any opportunity for off-frequency channel interference and eliminated the ill effects of changing input signal levels at the same time.

### Dealing With Ministry Field Offices

Radio Frequency Service offices now have in their files a document entitled "Licensing of 'On-Channel Boosters' For Television," dated 01 July 1994. Applicants should query their regional RFS office for assistance in framing applications for this service. Logically, initial applications will be a learning curve for both RFS personnel and yourself.

*We are interested in feedback* of your results as you work through this process. Address communications to: Robert B. Cooper, P.O. Box 330, Mangonui, Far North (FAX: 09-406-1083).





# TECHNOLOGY BYTES

...BITS and BYTES you may have missed in the rush to make a buck .....

*November 11, 1994 / ISSUE 94-11-12*

## SATELLITE TV AND RADIO

**United States domestic** satellite direct reception on the recently installed 7.3m Orbitron dish at Auckland University (CTD; 9409, p.29) is but one of several 'surprises' reported by TISCO's Tony Dunnett and the University's Brian Oliver. US signals from SATCOM C1 (137 west), C4 (135 west) and C3 (131 west) have been identified and videotaped. CTD's review of the tapes can be summarised by noting that on the 7.3 metre dish the picture and audio quality approximates that seen from Intelsat 508 (180 east) on the half transponder format network feeds (TRs 9 and 10 at 3,876 and 3,894 MHz for reference) when using a 3m dish; video is in colour, the audio has slight noise. To the west, a detailed satellite by satellite inspection found signals as follows: Palapa B4 (118 east) from three programmers, ChinaSat 5 at (115 east) from 8 programmers, Palapa B2P (113 east) from 16 programmers, Palapa B2R (108 east) from one programmer, and Gorizont / Stationar 21 (103 east) from two programmers; all in colour with CNRs of 4 to 10 dB. Signals from Asiasat 1 (105.5 east) and Apstar 1 (138 east) were detected but at levels well below usable video. The success with the US satellites looks to be the tip of an iceberg of what is possible with modifications to the 7.3m dish feed system. The satellites appear in a 'cluster' and badly bunched together at our eastern horizon with only very small antenna azimuth changes required to move from one satellite (such as C4 / 135 west) to an adjacent satellite (such as C1 at 137 and / or C3 at 131 west. On the stronger US domestic programme signals seen (such as QVC / Shopping Channel, Court TV and Deutsche Welle International) the dish's inability to separate individual point sources (each satellite is a point source) is a problem remaining to be solved. A detailed report appears in SatFACTS for November 15.

**Discovery Channel** (programming) feeds seen on Intelsat 508 (180 east), typically late Sunday afternoons through early evening, on several occasions since early October are not for SKY's Discovery service in New Zealand. Although the feeds were first seen the same weekend as SKY launched their 'Sky/Discovery Channel' (CTD: 9409, p.4), SKY's John Fellet expressed surprise when told of their presence on Intelsat as his modest amount of Discovery fare to date has been shipped here on tape. Discovery feeds repeated at about same time through October, are

## INTELSAT and PANAMSAT PAS-2 UPDATES

**ESPN** on Intelsat 508 (TR1, 3,720 MHz) is history. Customers, including SKY, are now taking the feed from PAS-2 on TR5-6 (3,850 MHz). It is just a rumour but some say **BBC World Service TV** may appear on TR1 of Intelsat around 1 January. If it does happen, the feed is almost certain to be encrypted. The **RFO** feed on Intelsat (TR18, 4,045 MHz) scheduled for CDV conversion may stay analogue well past the original 1 January deadline. RFO, like others, is not getting equipment delivery nor CDV performance they were originally promised. Testing from Intelsat 703 at 177 east should begin before the end of November. The new satellite, like 701 launched to 174 east in January, should be stronger than 511 it replaces and will not require inclined orbit tracking. Intelsat is trying hard to lease transponders on this satellite to Pacific area cable programming customers; keep an eye on this one. **Country Music Television** on PAS-2 (their TR11C, 4,034 MHz) plans to begin simultaneous feeds in CDV and analogue by end of November. Analogue feed continuation will be for still unspecified period of time. **Discovery Channel** will provide feeds to SMATV, cable, CATV and possibly DTH via PAS-2; details in SatFACTS for November 15. **PRIME Sports** (PAS-2, their TR9C, 3,992 MHz) daily feed (approximately 6PM-midnight NZ time) is scheduled to continue nightly through at least 1 January in analogue "free to air" format. Conversion to CDV is planned when network goes 24 hours and begins signing up paying customers. DTH service is being evaluated.



intended for Australia for use by new cable operators there but are of such short duration that they have (to date) had no more than 'demonstration value'.

The **'unexpected, robust nature'** of PanAmSat PAS-2 footprints throughout New Zealand has some of the PanAmSat programmers reconsidering their original plans. Country Music Television, which began transmitting country and western music videos on Pacific Rim transponder 11C (4,034 MHz; vertical polarisation) October 5, is seeking ways of marketing its 24 hour per day service to New Zealanders. Prime Sports (which also began limited day part service October 5 on MHz, 3,992 MHz vertical) and Discovery Channel report they are also exploring how to bring their programming to New Zealand motels, SMATV systems, cable systems and direct to home (DTH) as well. PAS-2 planning had anticipated New Zealand signal footprint levels in the 28 to 29 dBw region, which would have limited useful antenna size to 4.5 metres or more. The reality is better than the forecast and antennas as small as 1.8m are producing colourful (if not perfect) video and noise free stereo sound on CMT and others. Most DTH system planners agree that antennas in the 2.4 to 3.0m class will provide comfortable 'margins' for most of the PAS-2 services into New Zealand in their eventual CDV format and with antennas in this range complete DTH systems costing under NZ\$3,500 installed are now feasible. CMT expects to begin simultaneous transmission of CDV along with its present analogue format before the end of this month but is unable to provide an exact date when the analogue signal will be terminated.

**Cable News Network International** (CNNI) plans to drop its Intelsat 508 (180 east) analogue feed "sometime after March 1, 1995". Parent Turner Broadcasting began parallel feeds in compressed digital video on PAS-2 November 1st and in New Zealand affiliates Kiwi Cable and SKY Network have placed orders for customised format CDV decoders for the PAS-2 feed at initial reported costs of NZ\$34,000 each. The PAS-2 CNNI feed is not intended for DTH or SMATV use and Turner has designed a unique 'information highway' format to use their 54 MHz wide C band transponder. Within the 54 MHz spectrum, approximately 30 MHz located in the middle of the transponder has been reserved as a 'return link' to Atlanta to allow CNN news bureaux throughout the Pacific and Asia to send material 'backwards' into CNN Centre in Atlanta. These news feeds will be both CDV and analogue, depending upon the uplinking capability of the Pacific/Asian centre from which the news originates. Meanwhile, on either side of the 30 MHz 'centre lane' that heads back to Atlanta, Turner has allocated a pair of 10 MHz 'outward bound lanes' for CDV transmission of CNNI and other Turner programming. These 'lanes' are intended as links between Atlanta and various satellite feed points in the Pacific and Asia; Apstar, for example, will take the outward bound CNNI off of PAS-2 and feed it directly out to CNNI customers in CDV. Palapa, however, will take the same feed, reconvert it to a 'free to air' analogue (later CDV) format for distribution to DTH and other customers served by the Palapa footprint. What is missing in this plan is any DTH quality service for CNNI into the South Pacific (including New Zealand), after the analogue feed on Intelsat 508 ceases early in 1995. Several proposals to overcome this problem have been presented to CNNI and there is at least a 50-50 chance something can be worked out to accommodate the South Pacific region for DTH services of CNNI.

**CNNI has announced** its presently "free to air" service on Palapa B2P will be encrypted December 15th and viewers of Palapa are being provided with telephone numbers to call in Indonesia and Hong Kong (FAX 852-804-6415) to make arrangements for subscribing to the service. At the present time Palapa B2P programmers HBO and ESPN are employing B-MAC encryption.

**Star TV**, to move to Asiasat 2 scheduled for launch to 100.5 east in mid 1995, has selected the UK's NTL to develop an MPEG-2 based compressed digital video format; a system NTL calls VSC4000 MPEG-2. Star TV presently provides seven programme channels via Asiasat 1, six of these are free to air (Prime Sports, Channel V / music videos, Star Plus, BBC World Television, Zee TV and the Chinese Channel in Mandarin) and the seventh is the recently launched STAR Movies. STAR claims 42 million Asian households, 170 million viewers, in 53 countries. The new NTL formatted CDV will be employed on Asiasat 2 from the STAR switch on while the present analogue format service channels on Asiasat 1 will continue for at least one year. With the present seven programme channels on Asiasat 2 STAR plans to add additional new programming channels to an eventual maximum load of 42 separate programme channels on 7 transponders. STAR believes it is essential for the growth of their services that many of these programme channels remain "free to air" with advertising support since that provides a sound purchase rationale for new receive system sales. The NTL format CDV is being designed into a new generation of (UK firm) Pace Electronics receivers that will be available throughout Asia from STAR NET distributors by mid 1995. Under the NTL protocol to be employed, PACE receivers will be equipped with 'Smart Cards' containing several levels of programming access. At the lowest level, merely inserting the card into the receiver and reporting that card as 'active' will permanently activate the "free to air" programme service. The Asiasat 2 footprint has been designed to include



most of Australia plus approximately half of the land mass area of New Zealand within its 33 dBw or better footprint. The downside for New Zealand viewing is that the 100.5 geostationary position is low on our western horizon and while the signal level is forecast to be at least 3dB 'hotter' than the present PAS-2 signals, home receive antennas (2.4 to 3m in size) will require special 'earth shielding' to perform properly.

**The future status of Apstar 1** which found a parking location at 138 east (**SatFACTS**; Oct. 94, p.8), after a false start at 131 east, is an interim programming source for Asian viewers after all. Apstar 2, scheduled for launch in December, has been variously reported as heading for 87.5 east and all programmers currently signed up for Apstar 1 have indicated they will move, in bulk, to Apstar 2 when the new bird is operational. The programmers expected on Apstar 2 include Turner for CNNI, TNT / Cartoons, Hong Kong's TVB with Mandarin programming at first, Cantonese after Hong Kong regulations change, ESPN, Discovery, Viacom for their MTV music channel and Time - Warner for several sports and movie channels. A technical sheet provided by Turner Broadcasting, Hong Kong, suggests the 87.5 east position may not be as 'solid' as Apstar would have you believe; it lists the location of Apstar 2 as "89 degrees, +/- 10". The 87.5 slot is one held by China and the Chinese government holds a major financial stake in Apstar. However, the 87.5 location has significant potential interference problems from Russian high powered satellites at 85 and 90 east and has the further disadvantage of reduced coverage into eastern portions of China proper, Korea and much of Japan. Originally, Apstar 1 was to be at 131 east while Apstar 2 was to be at 134 east. The 134 location and the footprint coverage as designed from this location included eastern Australia and New Zealand within its 'hot signal' coverage regions. From "89.0 east, +/- 10 degrees" the satellite will not be visible in New Zealand at all although it will be usable in much of Australia at 2m dish levels.

**Australia's ABC venture** into the world of packaging an international television service (called ATVI; seen on Palapa in Southeast Asia) is drawing heavy criticism within the Australian media community. Apparently ABC had promised not to divert funds from other (terrestrial network) projects or programme productions into the ATVI service; a condition of gaining approval for the service. After a modest initial investment, ATVI was to stand on its own revenues. Those complaining are claiming with ABC direction independent TV production firms are creating 'lifestyle' programming which is, at best, thinly disguised promotional advertising for Australian business interests. The programming is being scheduled and promoted as 'news material' when in fact, claim the detractors, it should be plainly labelled as 'advertising material' that benefits the firms who are underwriting the production costs. Tourism firms in particular are being cited as participants in what some Australian television executives are calling a 'programming sham'. That ATVI has attracted a sizeable Asian audience, is apparently gaining in popularity, and perhaps is coveted by commercial concerns seems to be the cause of the latest attacks. ABC, a government funded not-for profit broadcasting service may in fact be ill-equipped to deal in the competitive commercial world.

**TVNZ use of NTL compressed digital video** is apparently being held up pending revisions in the system software. CTD has learned that tests between the UK and New Zealand have been run at various times since last February but the two satellite hop path, first via the Indian Ocean and then Intelsat 508 (180 east) frequently produced an unacceptable error rate. One participant reports "We had outages of as long as 20 seconds when the signal simply went away; the picture suddenly disappears after a mysterious 'Green Flash'." Similar problems occurred during CDV feeds to TVNZ for this past winter's St. Petersburg Games. TVNZ had originally agreed to take BBC1 and BBC2 feeds for as much as 24 hours per day via Intelsat using the NTL compressed digital format (CTD: 9401, p.22). The revised plan schedules fulltime CDV service on Intelsat 508 transponder 24 (4,188 MHz) by the first of the year assigning BBC1 and BBC2 each to a 9 MHz segment of the transponder, reserving the remaining 18 MHz for simultaneous feeds from the USA (via the Cochiwan, British Columbia gateway), and Australia, as well as the outward analogue feeds of the evening news (6 to 6:30PM local time). The CDV tests are now running daily. Horizons Pacific is to be a major user of BBC programming while TV1 will programme BBC service between their normal post-midnight sign-off and their present sign-on points making TV1 a 24 hour per day service.

**Hong Kong terrestrial broadcaster TVB** is preparing several programme channels to compete in the Asian market with Murdoch's STAR TV. TVB is expected to distribute the new services via PAS-2 in digital format but will be initially prevented from distributing programming in the Cantonese language because of local (Hong Kong) restrictions.

**International shortwave broadcaster** Far East Broadcasting Company (FEBC) is studying possible use of Asian region satellites to link its many remote studio and transmitter locations together. FEBC, with 20 shortwave frequencies in use from transmitters near Manila, maintains studios in Thailand, India, and throughout Asia for its largely religion based broadcasts. The firm plans completion of an extensive engineering study by April (1995) which will lead to the eventual shifting of all studio and transmitter links from traditional shortwave frequencies to satellite.



**US based MTV** which lost its Asian coverage earlier this year (CTD: 9404, p.28), is now back on satellite with several hours per day being distributed within India via a Doordarshan transponder on Insat. MTV lost its transponder position within the Murdoch STAR TV line up when it refused to allow the programming content to be regionalised as STAR TV wished. Now STAR has its own music channel, 'V', which is 24 hours per day. MTV plans to enlarge to 24 hours daily on Apstar from a Singapore studio and uplink by March as well as expanding its coverage within India.

**Asia Television Network (ATN)** with two channels of Indian language programming on Rimsat G2 (142.5 east) has entered the big time television programming market with a 27 game Cricket spectacle that opened October 17th and runs through finals on 14 December. The tests, involving New Zealand, India and the West Indies, are reported to have sold to ATN for US\$4m and are carried on the powerful 49 dBw (at boresight; Thailand and Myanmar) footprint that includes Australia, New Zealand and most of the Pacific within its 3m antenna size coverage zone. ATN began programming Indian music videos August 15 and reportedly has closed a further programming source contract for 2,500 Hindi (language) movies to begin scheduling in December.

**'Extended C band'** is the latest variation for designers of analogue and CDV receivers to ponder. From the 1969 launch of C band services, the accepted frequency band for downlinking (space to earth segment) has been 3,700 to 4,200 MHz. The only variation in this has been use of a slightly lower frequency limit (3,675 or 3,650 MHz) on Russian Gorizont / Stationar series satellites which creates an additional analogue TV channel the trade calls "1-" for one-minus. Apstar 1 (138 east) and Apstar 2 (possibly 87.5 east; see prior report) both have an "expanded C band frequency range" of 3,650 to 4,200 MHz. Asiasat 2, to be at 100.5 east by mid 1995, does this one better by expanding to 3,620 to 4,200 MHz. Not to be outdone, the Palapa C series of satellites (with Palapa C1 scheduled to go to 113 east in late 1995, C2M to go to 113 east in 1996 while C1 moves to 118 east) have "expanded" their downlink to 3,400 to 4,200 MHz. This gives them 30 transponders (each with an equivalent bandwidth of 26.667 MHz) and will require an entirely new generation of (a) LNBs, and, (b) receivers with at least an 800 MHz 'if' bandwidth (i.e. 950-1,750MHz). Both Palapa C1 and C2 have special antenna coverage beams that include a spot beam of +37 dBw into all of New Zealand on the even numbered (i.e., 2,4,6, etc.) transponders. This translates to a C band home (DTH) antenna size of 1.5m for New Zealand and eastern Australia.

**Palapa's orbital plan** has been announced in greater detail and the present plan is all good for New Zealand because of the special spot beam coverage the C series of satellites will have on board for South Pacific coverage. In 1994: B2R is at 108E, B2P is at 113E, B4 is at 118E and B1/Palpac-1 is in inclined orbit at 134E. In 1995, B2R will continue at 108E, new C1 will go to 113E, B4 will continue at 118E while B2P will become inclined orbit at 134 replacing B1. In 1996: B4 continues at 108E, new format C2M goes up to 113E, C1 moves to 118E, B2P continues in inclined orbit at 134 while B2R shifts to a storage spot at 150.5E.

**JCSAT-3 is now scheduled for 128E** using a modified Hughes HS-601 satellite in September 1995. This will be the first higher powered Ku band Japanese satellite created with spot beam coverage into New Zealand and Australia as well as 25 dBw footprints on C band into the same South Pacific region. The 60 watt Ku band transponders will place 43 dBw footprints into Australia (Adelaide east and then north along coast to Brisbane, as well as all of New Zealand) with 12 transponders each 36 MHz wide, 16 transponders each 27 MHz (switchable to 8 transponders each 54 MHz wide). JCSAT has not announced how these transponders will be programmed. The 43 dBw footprint into New Zealand translates to 1.5m Ku band dish size for analogue TV, slightly less possible for CDV.

**Major Indian film maker Subhash Ghai** has announced formation of a new programming company (Drishti) which ambitiously plans to produce 300 hours per week of new programming covering a total of 25 separate Indian languages and dialects. The programming will include soap operas, game shows, talk shows and serials as well as made-for-TV telefilms. India is in the throes of a programming access revolution with STAR TV's Zee channel on Asiasat 1 and CNNI two of the more popular 'foreign' services. Cable TV distribution within India of typically 12 to 40 channels of satellite and terrestrial TV has been explosive during the past year but the vast majority of India's 900 million population today still has access to fewer than 4 terrestrial Doordarshan (state TV) service channels. Drishti is capitalising on the demand for native tongue programming reflecting Indian social values with his new programming venture which he believes will spawn up to a dozen new satellite delivered programming channels within three years time.

**Next generation digital TV DTH** for US market, to come from Denver based Echosphere, promises to be a 'low cost alternative' to existing Thomson / Hughes DSS and Primestar services. Echostar plans November 1995 programme launch of first 77 digital TV channels with an additional 77 channels from a second satellite in July 1996. They claim their CDV receiver and 18" dish will sell for "under US\$500 complete" plus a planned US\$150 installation



fee. Thomson DSS currently sells for US\$699-899. Echostar also claims their US\$20 per month for the 'basic' programming package will be up to US\$10 per month less than the competition.

**Thomson DSS**, meanwhile, has changed from region by region 'roll out' within specified US markets to enveloping entire US simultaneously. Thomson had tried to control areas in which DSS receive system packages would initially be sold to "maintain some order in the marketplace." This resulted in huge backorder status for the Ku band US\$699 retail packages with some individual dealers ordering 1,000 plus units for as-available delivery. Thomson is now forecasting that it will have sold 1,000,000 units by mid year 1995, a point at which Sony has a contract to become a second source supplier for the hardware. The service passed 100,000 homes subscribing in mid-October, believes 500,000 subscribers by January 1st is not unrealistic. Older competitor Prime Star passed 100,000 subscribers in mid-September, forecasts 200,000 by 1 January. At the moment the major difference between the two services is dish size (DSS is 0.5m, Primestar 1m) and sales approach (Primestar leases its receiver packages, DSS sells them).

**Intelsat Board of Governors** still scheduled to hear final arguments in favour of creating high powered Ku band DTH class satellites during December. The huge success of DTH broadcasting in Europe has triggered the interest and Intelsat has identified those regions of the world where it would consider high power Ku DTH ... if it elects this path. No, the South Pacific is not on the list; South America, Asia, Europe, North America and Africa ... in that order.

**Three new satellites** have been cleared by the Clinton Administration for export to China where they will be launched using Long March rockets. Echostar 1 and 2 (late 1995, 1996), Asiasat 2 (mid '1995) have passed the paperwork hurdles; Intelsat 801 and 805, late 1995 and early 1997, are still pending as is Intelsat 708. In the past some satellites made in US have been delayed in shipment to China while US clears that their technology cannot be 'corrupted' or 'borrowed' by Chinese while they have satellites in their possession, prior to actual launch.

## **DIGITAL TV AND RADIO**

**General Instruments (GI)** Digicipher (I) format of compressed digital video which is being widely used by many North American programmers will have a new PAL compatible format by the second quarter (April-June) of 1995. The newer Digicipher II system will overcome a technical problem that has drawn considerable objection especially in Australia where pay TV firm Australis had announced its intention to configure its Optus-planned services using Digicipher (CTD; 9404, p.20). At the time of the Australis announcement prospective users were told the satellite feeds would be in American NTSC format via satellite, and users would be required to follow their GI DSR/1500 and DSR/2200 CDV decoders with an NTSC to PAL transcoder. This did not please anyone in the Australian satellite pay-TV community. GI also attempted to 'sell' their Digicipher I format to STAR TV Network for use with STAR's planned 42 programme channel Asiasat II service scheduled for mid 1995 operation; STAR TV opted however for a newly developed fully MPEG-2 based system from NTL. GI claims the DSR/2200 is upgradeable to Digicipher II format and early units going into Australia will test this claim as Australian pay TV services kick off sometime between February and April 1995. Here in New Zealand, GI is represented by Maser Technology Group (FAX 09-479-6536 Auckland, and, 04-385-9892 in Wellington).

**Korean factories** are the present suppliers to GI Digicipher for satellite TV receivers being built for the US DTH Prime Star system as well as the receiver 'guts' for the Thomson / Hughes DSS DTH service. The receivers contain a similar 120(+) pin 'monster chip' that does all of the CDV signal processing and typically contain as many as 'six layers' of PC board stacked in sandwich fashion. Primestar, owned by major US cable operators, selected the friendly-to-cable GI Digicipher format which in its present form is not compatible with the world standard MPEG-2 format. However, Prime Star will convert for customers their receivers to the new Digicipher II format MPEG-2 compatible format during the second half of 1995 at the same time it brings on line a second satellite with increased channels of service. The conversion will include new LNB - feeds for each receiver as well.

### **QUOTES WITHOUT COMMENT**

*"People don't buy cable because it has a fascinating headend, don't call down a satellite because it gives a lovely light, don't buy a VCR because it rewinds. People buy real programmes. Whether its Bob Shapiro and Marcia Clark doing the minuet in Judge Ito's courtroom or almost real dinosaurs in Jurassic Park, the programme is the thing."*

(Jack Valenti, Motion Picture Association of America President to Consumer Electronics Group)

*"Singapore is Disneyland with a death penalty."*

(Author Arthur C. Clarke to CTD publisher Cooper during visit to Clarke in Sri Lanka October 29)



**GI's backorder state** for Digicipher cable TV digital set-top decoders has now risen to 2.5 million units. GI admits reasonable quantities (not defined) of units will not be shipped before June-July 1995. The set-top units for cable employ technology remarkably similar to their Digicipher satellite TV receiver units and this backorder status has a direct impact on the ability of GI to produce CDV satellite receivers sufficient to meet the demand at any point in 1995.

**The promise that a major firm** will offer a digital processing 'transcoder' to those who own existing analogue satellite system receivers is becoming less and less likely. Originally, GI had promised a 'transcoder' that would insert into existing analogue receiver 70 MHz 'if' loops (found on the back of most existing receivers) with a scheduled retail price in the range of US\$400. Citing a lack of developmental engineering time, GI now admits no such project is currently underway and 'off the record' GI personnel are saying the firm has decided it would rather see all owners of existing analogue receivers purchase new (Digicipher II) format receivers than offer a 'transcoder' as an intermediate dollar step for conversion of analogue receive systems. The current GI catalogue lists their Digicipher I DSR/2200 receiver at US\$1,495 but GI sources suggest the mass produced Digicipher II format consumer (DTH) units will have a target price in the US\$500-600 range by the second half of 1995.

**Bell Atlantic**, owner of NZ Telecom, has completed shakedown cruise for its new Digital Services Bureau studio and production facility in Reston, Virginia. The centre is designed to convert analogue programming to digital for distribution through BA's proposed Stargazer fibre optic and coaxial cable hybrid networks under construction in the north-eastern US. Presently the centre can transfer from analogue to digital 20,000 minutes (equivalent to 166 movies each 2 hours in length) per month. They may need to improve their costs however; the first movie through the system required 150 hours at \$1,000 per hour (\$150,000 total) just for conversion.

**South Korea and China** have reached agreement combining technical forces to jointly develop a suitable HDTV system format for use in Asia. Japan has shown reluctance to be involved in an Asian HDTV format study, siding with proposed US HDTV format technology. Japan has also announced a task force to create the "next generation after HDTV / ATV" service parameters; they are shooting for 2,000 lines of definition (that's nearly 4 times the lines we now have, 2 times the lines HDTV / ATV will have) by the year 2000.

**US DAB system proponents** have rallied around the flag to get behind their IBOC (in-band, on-channel) digital radio. British favoured Eureka 147 system requires new frequencies for introduction of DAB and appears to have backing of Canada, Mexico in North America, Australia in Pacific, Germans and possibly others in Europe. UK has announced 147 adoption and launch date for commercial (BBC and others) operation in newly created 217.5 - 230 MHz band. Australia has been testing 147 at a low microwave frequency near 1,400 MHz. The US system had previously been criticised by Europeans for its lack of field testing and positive results. Armed with newly completed field testing data using both standard AM broadcast band as well as FM broadcast band, US now says it has definite proof that IBOC works as well or better than 147. And the US is now ready to go world-wide on an aggressive 'sales campaign' to push IBOC. Here's what's at stake: The US plan allows DAB to function simultaneously with existing AM, or FM, transmissions in the same frequency spectrum at the same time. This means no new DAB transmission bands must be created and established. It also means new DAB plus AM plus FM receivers could be built largely using existing component parts and existing receiver designs; the DAB portion becomes an add-on to present receivers. The Eureka-147 system maintains it offers technically superior performance and questions whether the world wants to accept a less-than-perfect digital audio broadcasting standard arguing that it would be foolish to upgrade to the benefits of DAB and then downgrade its performance by tacking it inside of the existing interference riddled AM and FM broadcasting bands. The British were the first to adopt a national standard and to actually begin a plan to convert all existing AM and FM broadcasting to DAB. They are equally hopeful that by pushing the technology out of the laboratory and into the field, they will create a market for British built DAB hardware that will improve the present sorry state of British electronic manufacture and improve UK exports for electronics. Working against 147 is that unless there is a single frequency band created for its operation on something approaching a world wide basis, universal receivers will be difficult to market if there are dozens of distinctly different frequency allocations for DAB throughout the world. The IBOC plan overcomes that particular threat by using existing world wide AM and FM bands for DAB. Interwoven into all of this but still taking a back seat in the arguments are new satellite delivered DAB systems that also require something approximating a world wide frequency allocation for universal receivers to be designed since satellite signals travel across national boundaries with impunity. The Americans say that if the 147 system, requiring new frequency allocations world wide, is adopted, they will go ahead with IBOC anyhow. And, they warn, going through the international regulatory system to decide on a new set of world wide frequencies for DAB could require ten to fifteen years to implement. For the consumer, DAB promises



noise free reception without vehicular static, an end to signal fading, CD quality audio reproduction, more or less without regard to which system is used. For everyone, new receivers will be required and whether IBOC or 147, the remaining years for AM broadcast and FM broadcast seem numbered at best. Hang on to your Sony five transistor portable; it ten years time it could be a valuable collector's item.

## **CONSUMER ELECTRONICS**

**New York and Long Island Newsday**, and, Los Angeles Times daily newspapers are now available in the home via computer network packager Prodigy. New York Times previously made its arts and entertainment section available via competitor America OnLine.

**CNN and Intel** have begun offering "CNN At Work" service which takes either CNN or CNN Headline News directly onto office computer screens. The real-time service is standardised at 12 frames per second and sits in a user deployed 'window' and material sent to the at-work computer screens can be stored by the computer with windows directed user friendly commands. Businesses signing up for the service through Intel have to put out US\$4,995 for a gateway system that converts analogue signals to digital format for distribution through local area networks (LAN). The per-computer-screen rates are US\$12.50 per month for up to 50 screens in a single LAN, \$10 per screen for above 50.

**Sony's 32 bit Playstation** home gaming system scheduled to go on sale in Japan December 3 at NZ\$700 for hardware and typically NZ\$102 for software. Sega will beat Sony by ten days with its US introduction of Genesis 32X add-on package as well as Saturn package in Japan. Sega also has announced a new unit called Neptune which will marry Genesis and 32X into a single unit at US\$200 or less by mid 1995.

**Thomson**, citing ever increasing costs of doing business in Singapore, is closing 900 employee TV receiver plant there and moving production lines to Thailand and Indonesia.

**Japan's electronic giants** have released consolidated financial reports covering first six months of current fiscal year (April 1 to September 30) and while overall financials are improved from last half of 1993 (CTD: 9402, p.3), sales for consumer electronics equipment continues to be a financial burden to most firms. Matsushita saw video sales fall 9%, audio product sales drop 4% from already disastrous 1993 last half. Hitachi had sales drops of 3.1% for TV products. Sharp reports TV and video product sales down 4% while Toshiba bucked the trend and reported a 1% increase. Within Japan, sales of wide screen TVs has been major bright sales area; unexpectedly, 2 out of every 3 full size TV set sales in Japan during last 90 days has been 16:9 widescreen format. This has helped company profits immensely since the extra screen size adds only 20% to the average factory cost of units while at retail the 16:9 sets are selling for an average of two times the price of standard 4:3 sets.

**Matsushita's 14" / 356mm flat panel** beam matrix colour TV receiver system, much regarded as TV screen of the future just one year ago (CTD: 9309, p.17) is now gone. The receiver is no longer being produced, reached a modest 3,000 unit per month maximum in Japan, was never exported outside of the country. With a Japan selling price of NZ\$5,100, the ultra thin wall hanging screen was apparently too small for the price to catch on in a big way.

**In US, Mitsubishi** has announced that all TV sets with picture tubes smaller than 20" / 508mm will now be 'outside sourced' and will no longer be built by the firm's own plants.

**Worried TV software suppliers**, including all of the major motion picture firms, are drawing up proposed legislation that will help them protect their copyrighted products in new 'all-digital world'. With several major Asian TV camcorder and VCR manufacturers announcing mass production and entry into retail marketplace of CDV consumer taping equipment by mid 1995 / early 1996, the technical ability for consumers to make 'perfect digital copies' with the new equipment has copyright owners concerned. A proposed technical solution, using clever software / hardware encryption techniques to prevent users from copying rental movies (fore example) was offered to industry by analogue anti-copy firm Macrovision earlier this year. This proposal has now been dropped in favour of new legislation which will make copying a major theft crime at least in US where legislators are scheduled to begin consideration of the proposal early in 1995.

**"CD-R"** (stands for compact disc - recordable) standards by 1996 are forecast by TDK and Toshiba. Recent advances in double density video CDs plus the development of very low cost consumer applicable (in home) recordable CD system for digital data has sparked renewed interest in ending by 2000 (if not before) any and all reliance of conventional videotape as a record and playback mechanism for either video or audio or data material. Playback only video CDs have been striving to reach world wide standards by 1996 driven by developmental work from Sony-Philips, Toshiba-Time Warner and other firms. The possibility that consumer products could standardise



on both playback and record plus playback HDCD-R (high density CD recordable) systems within that same time frame is drawing considerable engineering time and investment, especially in Japan.

**Digital home VCRs** will be delayed in the marketplace until early 1996. That's the current word from international consortium of more than 50 companies that have agreed on world DVCR standards. Ten months ago, Panasonic had forecast it would have DVCRs in consumer stores by January 1995. Reason for delay is termed "more political than engineering." Panasonic may have clear lead in being nearest to market with totally consumer level system and they feel they can "sit on their lead" for as much as one year and still beat competition to the marketplace. In interim year, or next 12 months, Panasonic will bring out "throw away broadcast standard DVCR camcorder units" to compete with present Sony lead in professional digital video field. Sony's pricing of digital hardware has been very high, and Panasonic believes they can grab major share of market by offering slightly more complex professional version based upon consumer style DVCR which will be so low priced that if a TV cameraman in field loses one (or two, or ten) in the course of shooting hectic events, nobody will particularly care. By offering this 'throw away' all digital camcorder to broadcasters, and holding back on purely consumer version for one year, Panasonic hopes it can whittle down Sony's professional field market lead and still not give up advantages of being first in the consumer field early in 1996.

**Sharp has brought out** a 'multimedia viewcam' that allows user to not only do normal full-range of camcorder functions, but also interconnect through companion (Viewcamteleport) to standard telephone line for video phone service. Using digital compression techniques, a full colour picture will move through a normal telephone line at speeds from 9,600 to 2,40 baud per second. As a receive unit, incoming images from similarly equipped callers are painted on 4" colour LCD, can be saved on built-in tape, or transferred to external equipment. As a transmit unit, camera has instant recall memory of ten colour scenes which the user can select and transmit on demand. As an automatic telephone answering machine, the caller is told "Please transmit a video picture or leave a message at the tone." Price is NZ\$5,780 for full camera and teleport.

**Sony has entered the 'personal digital assistant' market** and goes head to head with Apple and its Newton product line introduced one year ago. Sony's "Magic Link" carries a US list price of \$995 while Newton's second generation came out at US list of \$699 in March. Magic Link has LCD monochrome touch screen that integrates E-mail, FAX, telephone, on-line services and (US) nation-wide paging along with a considerable amount of personal information management software. The unit has an internal 2,400 baud modem for direct interconnection to the phone line and switches to 9,600 baud for FAX service. Magic Link weighs 1.2 pounds, runs on 6 AAA batteries (10 hours service) and the software included accesses America OnLine and PersonaLink. Optional accessories include a full sized plug in keyboard for desk use, Macintosh and Windows software, a rechargeable battery, pager card and ROM memory card. Newton has now sold 100,000 units (from August 1993 start) and forecasts sales to reach 1,000,000 by end of 1996. Motorola expects to release their own PDA by year end.

**Two VCR families** is now nearing majority in US according to recent study by Electronics Industry Association; they report 43% of US homes that own one VCR already own two VCRs.

**Another new use for home VCRs.** At least one US firm is 'renting' specially modified ultrasound equipment that allows users in privacy of their own home to make 'keepsake' foetal videos of unborn child. The US government is not pleased; the Food and Drug Administration (FDA) is warning this is an "unauthorised use of a medical device" and it will "take regulatory action against those who engage in such misuse of medical equipment."

**Thomson Consumer Electronics** is offering a totally free DSS (Digital Satellite System) receiving package (retail value US\$699-899) as a 'bonus' to any buyer of a TCE (RCA) 34"/864mm widescreen TV receiver from Sears, Circuit City and others in Los Angeles, New York, Chicago, Atlanta and Denver markets. Thomson has been totally unable to stay up with orders for DSS, but has been equally unsuccessful in getting its 34" widescreen (16:9) TV

#### **SURVEY: WHAT THIS SAYS ABOUT AMERICAN SOCIETY**

US Opinion Research Corporation found 18% of women and 9% of men surveyed "Would rather give up sex than the TV remote control." Expanding upon that, survey found "33% of homes say 'who controls the remote' is a source on conflict." And, 62% of men, 38% of women said "They were most likely to handle remote in their household." Finally, 55% of households admitted they misplace or "lose the remote at least five times per week." The survey did not ask who controls "having sex" in homes where women control the TV remote. Or whether they lose the TV remote more often each week than they have sex. Or, whether they were more likely to "have sex" after losing the TV remote.



receiver off the dealer floors in US. Thomson/Hughes DSS offers 16:9 movies on a regular basis, something otherwise not presently available within US and therein of course is why the RCA Cinemascreen TVs have not moved in the marketplace.

**Best videotape quality** in muddled marketplace? In recent US survey of consumer buying habits, fewer than 50% of those surveyed claimed they buy videotape by brand and shop strictly on price. Is that smart? Highly regarded Consumer Reports magazine has released latest technical tests of hundreds of tape brands and found TDK Hi-Fi Extra High Grade is best in the current marketplace, but also found Kmart Focal and Target Stores Target HQ are almost as good and at far lower costs.

**UK consumer electronic markets** continue to be 'soft'. In latest quarter sales from BREMA, large screen colour TV sales were up 0.6% from year ago same period; small screen TVs down by 2% and total of all TVs down 0.7%. Camcorder sales have been hardest hit; down 16.7% while VCR sales have dropped 7%.

**The 'typical' Japanese commuter** who drives his own car to work averages 3 hours and 17 minutes per day in the vehicle. That may explain latest in-Japan-available all electronic car navigation systems that combine global satellite positioning, LCD screen navigation maps, a talking computer that suggests best alternative routings around jammed roadways with TV reception, videogames and karaoke sing along all from the driver's seat. Toshiba recently upgraded their package to a 10" colour LCD while Sony's TeleNavi has proven so popular that production was tripled to 30,000 units a month. Wait until cars so-equipped begin to show up in New Zealand's second-hand-from-Japan car marketplace!

**September was best month**, ever, in US consumer electronics marketplace. More TV sets, more VCRs, more projection sets .... and so on sold in single month than in history to date. Projection TV set sales ran 34% ahead of 1993 figures for same month. In August, Japanese camcorders hit all time price low on US imports; below US\$500 per imported unit for first time.

**Consumer electronic and household appliance service shops** in US now have on-line computer modem access to technical manuals, service shop notes, repair and return authorisation policy data for virtually every product on the market from 30 different manufacturers. Key Prestige Information Network System charges US\$30 per month for access to the huge, growing data base plus an on-line downloading charge. Optionally, subscribers can request data to be sent by E-Mail thus saving significantly on downloading time. Data is downloaded at 1.9 Mbs presently, will upgrade to 4.9 Mbps shortly. A typical full service manual with schematics and service steps requires approximately 3 minutes of on line time.

## **CABLE/FIBRE TV**

**New Zealanders and Australians** interested in building cable TV systems may find unusual package of assistance from STAR TV of interest; the Asian operator that presently brings six free to air and one pay TV (movie) channel to an estimated 42 million homes from the Middle East to Korea, the CIS south to the Equatorial regions. STAR has formed STAR NET, a "one stop shop" for programming, technical assistance in planning CATV systems, hardware for the systems and financing for the systems. At Satcom Asia '94 in Thailand (October 21-24), Marketing Director Charles Pollard described how his firm has created the STAR NET division as a means of expanding the reach of the STAR TV programming. When STAR's satellite provider, Asiasat, launches their new Asiasat 2 satellite (presently scheduled for July 1995) a 33.5 dBw signal footprint will reach through approximately the western half of North Island as well as the western 2/3rds of South Island with a look angle of 5 degrees or more. This means well planned dishes in the 3 to 5 metre class should develop high quality (CNR 12 to 16 dB) signals on all of the STAR TV service channels. The present six free to air and one encrypted pay TV service channel are forecast to grow to more than a dozen channels of service by mid 1995. STAR NET has worked out equipment distribution arrangements with a number of major SMATV and cable TV suppliers including PACE (receivers), Paraclipse (antennas), Standard (headend modulators), Texscan (cable plant amplifiers). The prospective cable operator brings to STAR NET the following: complete description of the cable system area to be served, cash flow summaries showing projected costs and revenues over ten year period (see **Tech Bulletin 9401t**), proof of permission to build a cable system in the area (in New Zealand this amounts to holding Network Operator status from Ministry of Commerce; see **Tech Bulletin 9305t**). STAR NET has already been implemented in Taiwan and US\$50m is available for equity funding of new cable or cable upgrades in the first 12 months. Details from David Haslingden, STAR TV, F Hutchinson House, 10 Harcourt Road, Central Hong Kong (FAX 852-524-4093). CTD will feature an extended report on this programme in our December 9 issue.



**It's called "Pissing on the corners".** Dogs do it to mark their territory. African tribes a century ago left skulls planted on wooden posts to indicate to outsiders what might happen to them if they moved into new territory. Telecom has joined the cable hype fray and says it plans an "aggressive expansion of the fibre optic network following successful trials of cable television delivery in two Auckland suburbs." Actually, Telecom called in key hardware suppliers late in August and alerted them to their plans but 'embargoed' any news releases or publication of their plans until early November. The formal announcement was released concurrent with their announced six month earnings statement. In analysing the release and comments appearing in print November 4th / 5th, we highlight those points which we believe places their announcement in the appropriate perspective:

**"We are establishing a comprehensive (fibre optic) network to protect our telephone business;"** Dr. Roderick Deane, Chief Executive.

Interpretation. In the UK as of 1 September 54 out of every 100 homes that had a choice between British telecom telephone service and a cable TV supplied telephone service has chosen the cable TV and telephone combination. OOPS.

**"We already have competitors, for example, Television New Zealand subsidiary Broadcast Communications Ltd."**

Interpretation. We are not concerned about Kiwi Cable or others in this country. But BCL ... well, they could be a problem!

**"The first stage of the development - the Auckland pilot scheme (CTD: 9309, p.2) - has achieved a very high rate penetration compared with SKY and other cable television companies. The take-up rate of households offered the service has been more than 90 percent, of whom half paid a monthly fee and half paid on a use basis."**

Interpretation. SKY, which was not listed as a competitor in the first comparison to BCL, is suddenly worthy of consideration when it comes to comparing household penetration. The fact is that 90% of the homes in the 600 home test area have agreed to allow Telecom to bring into their home at no expense to the household a connection to the system. Or to put it another way, 10% of the homes don't want the service even if it is free! Within the 90% that agreed to trial the 'free service', some have also agreed to take services such as Worldnet and CNN at rates of under \$5 per month while others have bought specific programmes for a specific fee. Their concept has been to get the cable into the home, even if you have to give basic services away. And hope that once into the home with "free services" (TV1, TV2, TV3 et al) you can offer the home additional channels (SKY Movies, Sports et al) for which you charge a fee. To help make the 'sale', you offer the additional for-fee programming on a monthly basis or a per channel per day or per programme basis. The claim that 45% of the total (50% of the 90%) have agreed to a monthly fee, while the balance of 45% (50% of 90) have taken at least one programme (at some point over the past 12 months) on a per programme basis, is quite meaningless. For comparison, in Belgium and Holland between 85 and 92% of all homes with cable available pay a charge to connect to the cable, a monthly charge (that averages NZ\$43.32 per month), and on a per event basis an additional NZ\$17.83 per month per household. Or at Kiwi Cable, 63% of all homes passed pay NZ\$20 per month for their basic cable service, and average more than NZ\$20 per month in the rental of movies sent to their home via cable in addition to paying for connection to the service initially. For Telecom's numbers to be meaningful (and convincing) they should be released in a format that allows cable analysts to do comparisons with other similar businesses world wide. To date, Telecom New Zealand has not done this.

**"The pace at which Telecom develops the (nation-wide) network will be dictated by the extent to which providers want to use it. We will gradually roll it out ... over five to ten years ... this will be a big development in the next five to ten years, but you won't be hearing much about it from us for the next six to 12 months."**

Interpretation. Telecom would, with or without cable TV, be replacing hundreds of kilometres of old style telephone plant with fibre optic lines each year. Adding cable TV to the mix gives them a potential new revenue stream, but for reasons both technical and economic, it won't be in a position to capitalise on this for perhaps five to ten years. Fibre optic expansion has been happening anyhow, and it will continue to grow primarily into central city (densely business) areas. If you have been considering traditional cable TV for a community any distance removed from the highly concentrated city areas, don't be put off by the Telecom announcement. For now, it is nothing more than a skull on a fence post.

**Here's an example of meaningful statistics** which the appropriate personnel at Telecom might learn from. In a VDT test in West Hartford, Ct., Southern New England Telephone installed VDT hardware in a suburb containing



1,250 homes. Within that suburb, 875 homes were already subscribers to a TCI operated 45 channel system. After six months of operation, SNET claimed it had signed up 350 subscribers that 'abandoned' TCI in favour of SNET's VDT; 40% of the TCI subscriber base there. End of story? Not quite. SNET declined to mention, says TCI, that it offered free service to all 1,250 homes it passed for a 90 day period and they note "Who wouldn't sign up for free service!". Well, 900 homes didn't sign up, that's how many would not. "And," says TCI, "after the 90 day period, we find that TCI has no measurable drop off in subscribers in the test area. There is a huge difference between taking VDT as a free 'second service' and dropping established TCI cable." One footnote: TCI may have had it planned for a long time, but in January all 80,000 of its Hartford area subscribers will be upgraded to new digital cable service with 125 channels. A more meaningful test may come when TCI adds optional telephone service to its Hartford system. Will 40% of SNET's telephone customers 'abandon' the telephone company? Stay tuned.

**And here are the results of a 500 home survey** commissioned by Bell Atlantic itself. Home owners in US were asked, "Would you subscribe to a cable type of service if offered by BA?" to which 46% said they probably would do so. "If movies on demand are included?" and the number saying yes rose to 56%. "If the service is priced at least 10% lower than cable TV?" and 61% said yes. For those homes that do not presently subscribe to cable TV, 30% said they would subscribe to a BA service if the service included movies on demand (cable in the area surveyed does not yet offer movies on demand). Note that the biggest 'kick' in sales comes along when 'movies on demand' are added to the service. Recent Telecom NZ press agency makes no mention of a movie on demand service here. Do you suppose anyone at BA ever forwards corporate marketing memos to New Zealand? Do you wonder if anyone here ever reads them???

**Three of the world's largest cable operators** (TCI which owns a sizeable chunk of local SKY Network, Cox Cable and Comcast) have joined forces with long distance telephone service supplier Sprint in a venture called Newtelco. This will give Sprint (which owns 40% of Newtelco) access to local networks through the combined cable TV systems of the three cable partners which presently go past 1/3rd of all US homes. The cable firms are presently upgrading 290,000 miles of existing cable plant to allow them to be used for telephony service as well. This venture is in direct competition to the AT&T telcos and certainly won't make life simpler for telephone firms such as Bell Atlantic (owner of NZ Telecom).

**VDT (video dialtone)** has received first level approval from US Federal Communications Commission. This paves way for telephone companies there to provide video service directly to the home through fibre optic or fibre plus coaxial networks. Cable industry in US had fought against such approval claiming telephone companies will subsidise VDT through existing telephone profits; a 'no-no' in the US where separate services are required by law to stand on their own. A consumer group claimed allowing telcos to enter the VDT business would cost all US telephone homes an average of US\$16 per month for twenty years as a subsidy. NZ Telecom owner Bell Atlantic hailed FCC decision as "important first step toward competition."

**Time Warner**, also an investor in local SKY Network, has made formal application in state of Ohio to use its cable TV systems there to deliver local telephony services to subscribers.

**Australian cable update** as the rules change monthly (sometimes weekly). The participants and alliances change weekly (sometimes daily) and vast amounts of time are spent unproductively within the dynamic, yet-to-be-born industry as participants and would be participants jockey for position. Are there yet any cable subscribers on any cable systems? No, if you overlook the few hundred who have been 'testing cable' for several years now. Are there regular cable programmes being distributed to cable systems, yet? Again, no. The players by their present (1 November) alliances and what they appear to be doing:

**Optus Vision:** Involves telephone company Optus Communications plus investor / partner Continental Cablevision (one of five largest US cable owners), Seven Network, Nine Network. This group claims they will spend A\$2B to create a hybrid fibre optic / coaxial network designed to compete with the previously announced Telecom cable system (CTD; 9404, p.20). Optus Vision will own the hybrid cable plant while telephone company Optus Communications is anticipated to operate as a 'common carrier' (make transmission capacity available to others for a fee).

**(Telecom) VisionStream:** They announced their cable TV intention first (CTD: 9404, p.20) and said they were creating a 'broadband coaxial cable network for hire.' A firm calling itself Cable Television Services (CTS) announced at the same time they would lease 70 MHz of bandwidth (equivalent to 10 analogue channels, 7 MHz wide) and offer to 1.1 million Australian homes, by mid 1998. The service was to kick-off in the Sydney region in July of this year and be 'in front of' (available to) 150,000 homes. It did not happen on schedule.



**Australis (Galaxy TV):** Formed a joint partnership with (US) Liberty Media and Prime (Sports) International. Both Liberty and Prime are corporately related to TCI, the world's largest cable TV operator. Australis seems to have had its attention diverted from cable TV developments of late; a new sports channel service plus a new 24 hour per day (horse) racing channel (read off-track betting) are getting most of their attention. Liberty and Prime have transponder on PAS-2 and approximately 6 hours per day (evening) is now being transmitted in a 'test mode'. Australis seems to be headed away from the actual cable operations side in favour of creating programming to be used by cable TV, SMATV and perhaps DTH viewers. A new A\$15m 'customer services centre' in Adelaide is due on line in February. Its pivotal role in uplinking and directing programming from one satellite to another suggests strongly that no satellite delivered services are likely in number before February.

**Australian media** has focused narrowly on non-issues to create a confrontational rugby-test image of the two major players: Optus Vision, and, VisionStream. Because of a quirk in Australian regulatory law, it appears Optus Vision will not be allowed to pull their A\$2B in cable and amplifiers through existing underground ducting put in place (and today unused) by Telecom. In the media image war, Telecom is claiming their new system is "unobtrusive" while suggesting that Optus Vision is a "blight on the landscape". By being denied access to the underground ducting, and smart enough not to dig up streets to put in tens of thousands of kilometres in new ducting, Optus Vision has been forced to rent pole space from the electrical utilities. This places their new cable lines above ground, and with gentle nudging from Telecom public relations and some say arm twisting of local council members, these overhead lines are running into opposition. All of this makes amusing reading but none of what has happened to date has advanced the delivery of cable TV into Australian households by even a metre of cable.

**Wharf Cable has signed Australian ATVI** for cable carriage to the estimated 80,000 homes now served by the Hong Kong cable TV system. Wharf allocates one of its channels for "International" services and ATVI will be seen there approximately 6 hours per day along with existing feeds from the BBC, CCTV and French service RFI/CFI. CBNC service of US NBC network has signed deal with Wharf Cable for Hong Kong cable carriage; ANBC is the official service name which is likely to pop up on a 'satellite near you' soon.

**A plan to create an Asian-wide feed** made up of composite programming from the four major Philippine TV networks has run into difficulties. The four broadcasters, plus the Philippine Cable Television Association, had planned to lease transponder space on PanAmSat PAS-2 and distribute programming to remote Mindanao island cable systems plus to cable TV systems elsewhere in Asia. To kick the project off, each of the four broadcasters was to pay into the joint venture US\$40,000 for two months of transponder rental and an additional US\$25,000 for the uplink facility. Asian sources report there was disagreement between the parties as to the proportional costs to be allocated to each party, and the term of the PAS-2 contract. PanAmSat opted for ten years, some of those invited to participate wanted no more than 5 years. The group had signed a letter of intent with PanAmSat this past July, and was scheduled to begin service on PAS-2 during November. For now, the project is dead.

**Shake out for Taiwanese cable TV** operators is underway. One year ago Taiwan adopted legislation bringing it into world wide copyright regulation framework and this required existing cable TV operators to register with government and end their traditional use of video products without regard to copyright (CTD; 9309, p.22). Taiwan had been accused of openly flaunting international copyrights and most cable TV systems showed movies and foreign TV programmes without respect to copyrights. The 1993 regulations gave cable operators one year to bring their operations into compliance and a major hurdle has been a requirement that cable operators show their cash liquidity to upgrade the technical operations to meet new standards. There are 615 known Taiwanese cable firms but the regulations allow for a maximum of 260 licences. Mergers are underway to consolidate smaller systems into larger systems and industry sources believe when the shake out is completed, there may be fewer than 100 actual systems holding a licence.

**New Zealand Telecom's Bell Atlantic** owner is one of three U.S. telephone firms pledging NZ\$750m to the formation of a new video entertainment service that will be available exclusively through fibre optic design home entertainment and information systems. Joining BA is New York's NYNEX and California's Pacific Telesis. The telephone companies believe they must create their own, original, programming to compete with the closely held programming owned and controlled by the major North American cable TV operators. That some of this programming might eventually find its way into NZ Telecom's announced fibre optic cable system plans is a given.

**Singapore Telecom** has expanded its investment in the cable TV world with the purchase of Stjärn TV Group which presently serves an estimated 210,000 customers in and around Stockholm, Sweden. The purchase price was NZ\$161m or NZ\$767 per cable subscriber which is an exceptional price in a market where NZ\$3,000 and up pricing has been common recently. Singapore Telecom had earlier invested in UK cable systems Cambridge Cable TV and



Yorkshire Cable Group and has been reported to have entered into a partnership agreement with US Continental Cable to construct a Singapore cable plant to reach 700,000 potential homes.

**Comsat**, the US signatory representative to Intelsat, is going into the TV programme business. A US\$29m investment has been signed to allow Comsat to acquire Beacon Communications, a Los Angeles film and TV production company. Comsat is also building a 19,000 seat arena for its recently acquired Denver Nugget NBA basketball team and is talking with TCI owned Prime Sports Network (presently on PAS-2) about packaging Denver Nugget games for distribution world wide.

**Cox Cable for its San Diego cable TV system** begins installing CouponSelect printers developed by Acu-Trac services in January. The printers will allow TV viewers to print out in their home advertising 'coupons' that TV advertisers transmit within their commercials. The coupons will then be taken to local stores for discounts on merchandise; instant discount coupons for the household shopper via the television set. Cox plans 1,000,000 of the printers by the end of 1995.

## **TERRESTRIAL BROADCASTING**

**Ministry of Commerce** has released list of 16 new locations for brand new UHF television stations to be auctioned off as early as February/March. The 'Sixth Radio and Television Frequency Tender' also lists 76 sites for new FM broadcasting stations. Under the guidelines, interested parties may request a copy of the Tender Summary (call John Spavin on 04-471-9409) which includes a listing of communities or transmitter sites planned for new AM, FM and (UHF) TV transmitters. In UHF TV there are 9 low power transmitters (500 watts eirp or less) proposed, 9 medium power (500 to 5,000 watts eirp) and 8 high power (over 5,000 watts) listed for frequency auction. In the FM broadcast range (89-100 MHz), there are 57 low power, 62 medium power and 5 high power transmitters. Additional sites may be added and some sites now listed may not appear on the final list offered for tender. In the next step, you register your interest in receiving the tender document (call Maureen Wells on 04-474-2627). The actual tender documents will cost you \$112.50 including GST and there will be a reserve (minimum) of \$500 on each frequency tendered. Note that the 27 potential new TV transmitters and 124 new FM transmitters all appear on the 'list' because someone has asked for new frequencies at the listed locations. If you find one that interests you, it means somebody else is also interested.

**TV3 expansion is said to be** "at or ahead of schedule" in northland and central South Island (CTD: 9407, p.11). As detailed in our July issue, before TV3's new channels can be installed and turned on, there are significant numbers of existing TV1 and TV2 translators which must change operating channels. This began October 15 (Victoria Valley: TV1 from channel 4 to 9, TV2 from 10 to 5) with a scheduled windup November 1st. Nine community sites were affected, 14 channels in all (see tabular report here). In a joint announcement mailed to most TV viewers in northland, TVNZ told viewers in affected communities "Viewers served by these translators will have to adjust the tuning of their TV sets and VCRs to continue to receive TV One or Channel 2 on the different frequency. Some

| LOCATION        | OLD TV1 | NEW TV1 | OLD TV2 | NEW TV2 | (New) TV3 |
|-----------------|---------|---------|---------|---------|-----------|
| Ahipara         | 4H      | 9H      | 10H     | 11H     | 7H        |
| Hikurangi       | 3H      | 3H      | 1H      | 1H      | 10H       |
| Kaeo            | 4H      | 11H     | 10H     | 5H      | 2H        |
| Maungataniwha   | 6V      | 6V      | 8V      | 8V      | 4V        |
| Mangonui        | 4V      | 10V     | 2V      | 2V      | 7V        |
| Ngunguru        | 8V      | 8V      | 6V      | 6V      | 4V        |
| Pawrenga        | 4V      | 11V     | 2V      | 2V      | None      |
| Russell         | 4V      | 5V      | 7V      | 7V      | 11V       |
| Takahue         | 4V      | 10V     | None    |         | None      |
| Te Kao          | 4V      | 9V      | 10V     | 5V      | None      |
| Victoria Valley | 4V      | 7V      | 10V     | 9V      | None      |
| Waihu Valley    | 4V      | 7V      | 10V     | 9V      | None      |



older antennas were not designed to receive the new higher frequency (channel 11) to be used at Ahipara, Kaero and Pawaranga properly, and may need to be replaced or altered." Viewers were also told "Both TVNZ and TV3 advise that no reimbursement of costs will be payable to viewers. All expenses incurred by viewers consequent to this change are (your) own responsibility." That viewers tuning into new transmitters on "the new higher frequency (channel 11) ... may need to have antennas replaced or altered" shows considerable lack of understanding of the nature and quality of consumer antennas by the individual responsible for preparing the announcement. (A study of our **Tech Bulletin** issue 9403T dealing in depth with consumer TV antenna design shortcomings is recommended to those responsible for this statement!). The next 'trick' is to complete installation of new TV3 transmitters and begin TV3 service in northland. The third network still maintains the following dates would be met: Hikurangi master transmitter on channel 10 horizontal / end of October; Maungataniwha master transmitter on channel 4 horizontal / mid November; Kaero translator on channel 2 horizontal (fed from Maungataniwha) / end of November; Ahipara translator on channel 7 horizontal (fed from Maungataniwha) / end of December; Ngunguru translator on channel 4 vertical (fed from Hikurangi) / end of December; Mangonui channel 7 vertical (fed from Maungataniwha) / end of December.

**A parallel progress report** for mid-southland locations, primarily in the Queenstown vicinity, identifies new TV3 channel numbers for several sites. Queensbury will have TV3 on 4V; Mt. Maude will have TV3 on 6V; Wanaka will have TV3 on 11H; Coronet Peak will have TV3 on a UHF channel; Queenstown will have TV3 on 9 or 11H; Peninsula Hill will have TV3 on a UHF channel; Arrowtown will have TV3 on 2H.

**Sri Lanka's ETV has begun its second year** of operation using band V (UHF) TV channels (2) for relaying of satellite fed programming taken from STAR TV's Asiasat 1 services. ETV, locally owned, uses a 1 kW transmitter and 10 dB gain antenna to cover a 50 km radius from a 250 foot antenna on the shoreline at Colombo. Two additional UHF channels serve the mountain city of Kandy as repeaters from Colombo. ETV principals, who won channel concessions from the government, first attempted to secure permission from the BBC World Service to rebroadcast their programming. The BBC essentially refused to deal with the Sri Lankan broadcaster. ETV was then able to secure special legislation through the Parliament which made the firm 'copyright lawsuit proof' from the BBC within Sri Lanka; and they began to rebroadcast the BBC feed from Asiasat without an agreement. Shortly thereafter the BBC decided they should work out a commercial agreement with ETV and now ETV and BBC split revenues for advertising sold within Sri Lanka by ETV and added to the satellite feeds retransmitted on ETV's UHF channels. ETV then expanded to a pair of UHF channels and began taking mixed feeds from other Asiasat services including 'V' music and Prime Sports. An additional Sri Lankan firm has recently signed a memorandum of understanding with CNN and it hopes to begin broadcasting a 24 hour day by the end of the first quarter in 1995. The new firm's agreement with CNN allows it to insert local commercials in the news network feed, to recover its US\$200,000 start-up costs, before it begins 'sharing revenues' with CNN on a 25-75 basis (25% to CNNI).

**Summer period long distance interference** to band I TV reception from Australian stations began to appear on November 6. Interference is likely to be especially severe along western coastal areas of both islands and throughout northland above Keri Keri.

## **HANDY SatFACTS SUBSCRIPTION FORM**

SatFACTS is monthly (15th of each month) and totally devoted to the rapidly developing world of direct-to-home satellite TV broadcasting in the South Pacific. Subscribers proclaim SatFACTS the "Bible of the home satellite TV industry."

☐ **SIGN ME UP FOR SatFACTS; 12 issues NZ\$40 (US\$40 outside of NZ)**

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**Check for \$40 (in applicable funds) to: SatFACTS, PO Box 330, Mangonui, Far North (NZ)**